

2040 Metropolitan Transportation Plan



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Saginaw Metropolitan Area Transportation Study 2040 Metropolitan Transportation Plan

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Foreword:
Coordination of the 2040 Metropolitan Transportation Plan with MAP-21

On July 6, 2012 President Obama signed into law PL 112-141, Moving Ahead for Progress in the 21st Century (MAP-21). This new transportation bill authorizes and funds federal surface transportation programs for two years, taking effect on October 1, 2012 and expiring on September 30, 2014.

The provisions of MAP-21 were being developed and debated by Congress at the same time the SMATS 2040 Metropolitan Transportation Plan (2040 MTP) was being developed locally by the MPO staff and members. While SMATS was aware of the potential for a new federal transportation bill, the SMATS 2040 MTP was actually completed and locally approved prior to the passage of MAP-21.

This information in this section is provided to acknowledge the existence of MAP-21 and to note its implications for transportation planning. It is also important to note that the emergence of MAP-21 does not represent an abandonment of the programs and planning requirements established under SAFETEA-LU, the previous federal transportation bill. In fact, many of the same programs and metropolitan planning requirements are continued under MAP-21. However, MAP-21 does consolidate several highway programs and it establishes some major new requirements for transportation planning. The most significant changes are summarized below:

Metropolitan Transportation Planning

New policy initiatives include:

- Long-range transportation plans and TIPs are to be developed through a performance-based approach.
- Within two years of the enactment of MAP-21, each MPO shall include representation by transportation providers, including providers of public transit systems. (*Note: SMATS already does this*).
- Requires MPOs to establish and use performance-based approach to support national goals.
- MPOs establish targets to track progress toward attainment of outcomes for the region:
 - The targets are established in coordination with the state and providers of public transportation no later than 180 days after the state or public transportation establish performance targets.
 - The MPO integrates the targets into the planning process directly or by reference to goals, objectives, performance measures, and targets of state and transit plans.
 - The long-range plan shall include a description of performance measures and targets.

Performance Measures

- MAP 21 establishes national goals in seven areas: Safety; Infrastructure Condition; Congestion Reduction; System Reliability; Freight Movement and Economic Vitality; Environmental Sustainability; Reduced Project Delivery Delays.
- USDOT is responsible for establishing performance measures, in consultation with the states.
- MPOs, transit agencies, and stakeholders (and through a rulemaking within 18 months) for the following:
 - NHPP – NHS highway and bridge performance and condition;
 - Highway safety – Serious injuries and fatalities;
 - CMAQ – Traffic congestion and on-road mobile source emissions;
 - Freight movement-related measures; and
 - Transit safety and state of good repair.
- States are required to establish performance targets in coordination with the MPOs and transit operators for the measures (including rural transit-related measures) within one year after the final rule establishing the performance measures.
- MPOs are required to establish performance targets in coordination with the states and transit operators within 180 days after adoption of targets by the state or transit operator.
- Performance measures and targets must be incorporated into long-range planning and short-term programming processes.
 - Long-range plans, TIPs, and STIPs must show the progress that is expected to be achieved by planned decisions and investments.
 - USDOT will evaluate the appropriateness of state targets and the progress that the state is making in achieving performance targets.
 - States and MPO long-range plans will include System Performance Reports that describe the progress made toward achieving performance targets.
 - USDOT will establish minimum condition levels for all highways on the interstate system and bridges on the NHS.

From the preceding summary, it is apparent that *performance measures and targets* are major new items that will need to be addressed in the transportation planning process. Performance measures are noted in the SMATS 2040 MTP (see Chapter 3). However, these measures may not be the same as the ones that are eventually approved through the USDOT rulemaking process, and the MTP does not specify performance targets.

The MAP-21 language appears to require a collaborative process to establish the performance targets that involves the state, the MPO's, and the transit operators after the final rule to establish the performance measures is put in place by USDOT. Therefore, SMATS intends to fully participate in this process with MDOT, the other Michigan MPO's, and the transit operators to establish appropriate performance targets. If this process results in changes that are required in the 2040 MTP, the appropriate additions and changes will be incorporated as a plan amendment in the future.

Chapter 1

Introduction and Overview of the Planning Process

Introduction

On August 10, 2005, the President signed into law the **Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users** (SAFETEA-LU). With guaranteed funding for highways, highway safety, and public transportation totaling \$244.1 billion, SAFETEA-LU has represented the largest surface transportation investment in our Nation's history. The two landmark bills that brought surface transportation into the 21st century – the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) and the Transportation Equity Act for the 21st Century (TEA-21) – shaped the highway program to meet the Nation's changing transportation needs. SAFETEA-LU built on this foundation by supplying the funds and refining the programmatic framework for investments needed to maintain and grow our vital transportation infrastructure.

SAFETEA-LU has attempted to address the many challenges facing our transportation system today – challenges such as improving safety, reducing traffic congestion, improving efficiency in freight movement, increasing intermodal connectivity, and protecting the environment – as well as laying the groundwork for addressing future challenges. SAFETEA-LU has promoted more efficient and effective Federal surface transportation programs by focusing on transportation issues of national significance, while giving state and local transportation decision makers more flexibility for solving transportation problems in their communities.

Under SAFETEA-LU, the metropolitan planning process is required to address the following eight factors:

1. Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency.
2. Increase the safety of the transportation system for motorized and non-motorized users.
3. Increase the security of the transportation system for motorized and non-motorized users.
4. Increase the accessibility and mobility of both people and freight.
5. Protect and enhance the environment, promote energy conservation, improve quality of life, and promote consistency between transportation improvements and state and local planned growth and economic development patterns.

6. Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight.
7. Promote efficient system management and operation.
8. Emphasize the preservation of the existing transportation system.

SAFETEA-LU expired on September 30, 2009, but it has been extended by Congress nine times, currently through June 30, 2012. A new national surface transportation bill has been the subject of considerable legislative activity in both the House and Senate. However, at the time this plan was in preparation, the metropolitan transportation planning process is still operating under the requirements of SAFETEA-LU.

The SMATS Transportation Planning Process

Every metropolitan area with a population of more than 50,000 persons must have a designated Metropolitan Planning Organization (MPO) for transportation to qualify for federal highway or transit assistance. The Saginaw County Metropolitan Planning Commission is the MPO for the Saginaw Urbanized area. Federal regulations require that the metropolitan area has a continuing, cooperative, and comprehensive transportation planning process that results in plans and programs that consider all transportation modes and supports community development and social goals.

It is important that the membership of the MPO include the involvement of policy makers, technical staff, and the citizens of Saginaw County to address various facets of the transportation planning process.

The United States Department of Transportation (USDOT) relies on the MPO to ensure that highway and transit projects that use federal funds are products of a credible planning process and meet local priorities. USDOT will not approve federal funding for urban highway and transit projects unless they are in the MPO's program. Thus, the MPO's role is to develop and maintain the necessary transportation plan for the area to assure that federal funds support these locally developed plans.

Since the MPO is made up of those agencies responsible for carrying out transportation programs in the region, the process puts all units into partnership with one another to carry out the programs. Any agency can, however, carry out its own transportation projects with its own funds independent of the MPO.

The MPO performs three major work activities to meet specific federal requirements. These are:

- The development and maintenance of the *Metropolitan Transportation Plan (MTP)* through a "continuing, comprehensive, and cooperative (3C)" planning process. Under previous legislation, this document was known as the "Long Range Transportation Plan" or, simply, "Long Range Plan."
- The development and maintenance of a four-year *Transportation Improvement Program (TIP)* that identifies all transportation system improvements in the SMATS area that receive Federal funding, including highway, transit, and non-motorized projects.
- The annual adoption of a *Unified Planning Work Program (UPWP)* or, more simply, *Unified Work Program (UWP)*. This document presents a comprehensive one-year planning program that describes and coordinates the individual transportation planning activities of all agencies in the area.

These products are required for the SMATS Metropolitan Planning Organization to maintain its eligibility for federal transportation funds.

Organizational Structure for Planning

The *Saginaw County Metropolitan Planning Commission* is the policy body for the SMATS organization. The Saginaw County Metropolitan Planning Commission (SCMPC) consists of eleven (11) members who are appointed by the County Board of Commissioners and, in addition, representatives of the following entities who serve as non-voting *ex officio* members: MDOT, Saginaw County Road Commission, City of Saginaw, and the Saginaw Transit Authority Regional Services (STARS). The Saginaw County Metropolitan Planning Commission meets on a regular monthly schedule in the Saginaw County Courthouse. At these meetings current transportation issues are discussed and status reports on transportation studies and projects are presented. After committee discussions are completed, policy actions are taken that include adoption of the UWP, TIP and the Metropolitan Transportation Plan, revision of these documents when needed, and adoption of resolutions related to current transportation issues.

The *Transportation Planning Committee* serves as the MPO's advisory body on all transportation-related matters. Transportation Planning Committee meets on a regular monthly schedule at the Saginaw County Metropolitan Planning Commission offices at the County Governmental Center. The voting membership of the Transportation Planning Committee includes the Chief Elected Official (or their alternate) from each unit of local government in the Saginaw Urbanized Area, and representatives of MDOT, the County Road Commission, the East Central Michigan Planning and Development Regional Commission, the

7-B Rural Task Force, STARS, and the Saginaw County Metropolitan Planning Commission. Non-voting members include representatives of the Federal Highway Administration (FHWA) and Federal Transit Administration (FTA). Non-voting membership is also open to rural municipalities, and all other public and private entities with an interest in the transportation planning process.

The Transportation Planning Committee also maintains a *Technical Committee* composed of individuals with expertise in transportation planning. The Technical Committee serves to provide advice and recommendations to the Transportation Planning Committee on all technical aspects of the transportation planning process. The Technical Committee meets as needed, but at least quarterly.

The 2040 Metropolitan Transportation Plan

SMATS has prepared and maintained transportation plans (formerly known as “long range plans”) for many years. The most recent plan was adopted in 2007 and was prepared for the horizon year of 2035. The current planning effort will substantially update and revise the current plan to address the new challenges and opportunities facing the Saginaw Metropolitan Area’s transportation system, using a target year of 2040. The 2040 plan will continue to address the requirements established by SAFETEA-LU.

Air Quality Considerations

Air quality conformity determinations for the MTP are required to demonstrate that emissions from planned actions are consistent with the emissions budgets for the area. Emissions budgets in limited maintenance plan areas may be treated as essentially not constraining for the length of the initial maintenance period because it is unreasonable to expect that such an area will experience so much growth in that period that a violation of the ozone National Ambient Air Quality Standards (NAAQS) would result. The limited maintenance plan for the Saginaw area was approved on January 16, 2001. Therefore, the MTP for the Saginaw Metropolitan Area Transportation Study for ozone maintenance can be considered to have met the requirement of the emissions budget test. There is no requirement to conduct a conformity analysis for Saginaw County under this designation.

Plan Amendments for Projects Not Included in the Plan

The list of transportation projects identified in the 2040 Plan has been compiled with extensive input from local road agencies, MDOT, transit operators, and local communities. However, the situation may still arise where projects not currently listed in the plan may be proposed.

The 2040 MTP may be amended at any time in accordance with the procedures specified in the SMATS Participation Plan and By-Laws. In general, a plan amendment would be required to

add a new capacity improvement project to the plan. Capacity projects must also be evaluated by the MDOT Statewide and Urban Travel Analysis Section using the Travel Demand Model that has been developed for the Great Lakes Bay Region. Also, financial constraint of the MTP must be maintained.

Preservation and maintenance (“repair and rebuild”) projects do not need to be specifically listed in the plan. These types of projects generally do not require a formal amendment of the MTP.

The 2040 MTP also contains a list of illustrative projects in Chapter 11. These are additional transportation projects that have been identified by agencies and member communities that presently lack sources of funding. These projects are not part of the financially constrained plan. If additional funding becomes available for an illustrative project, it is the intent of this plan to permit the project to be added to the project list in Chapter 6 without a formal amendment, *provided* that financial constraint is maintained for the overall plan. As noted above, capacity projects to be added from the illustrative list must also be evaluated by the MDOT Statewide and Urban Travel Analysis Section using the Travel Demand Model that has been developed for the Great Lakes Bay Region.

Chapter 2

The Existing Transportation System

The SMATS area is served by several forms of transportation. While it is true that the transportation planning process tends to focus on streets and highways, the other means of safely moving people and goods are equally important and must be addressed in the long-range planning effort. This chapter provides an overview of the existing transportation system and its multi-modal nature. A map that shows an overview of the major transportation facilities in Saginaw County is located at the end of this chapter (*Figure 2-1*).

Roads and Highways

The dominant form of access to other communities for both passengers and freight is the state trunkline network, which includes two freeways and seven state highways within the Saginaw Metropolitan Area Transportation Study boundary. The dominant artery through the area is Interstate 75 (I-75) which links Saginaw to Detroit and the Mackinac Bridge.

Internal circulation is dominated by the road network. Freeways and state trunklines are supplemented by a grid of county and municipal arterials and collectors. The majority of the County's residents rely on the automobile for normal work, shopping, visiting, entertainment and recreation. The grid road network in Saginaw County, except for interruption by the Shiawassee Flats, provides a high degree of accessibility. *Figure 2-2* provides a snapshot of the roads within the county that are eligible for Federal Aid.

The I-675 and M-13 Washington Avenue Interchange project began in 2010 and was completed in 2011. With more direct access to M-13 and the downtown area these improvements will assist traffic to the hospital corridor as well as support the growing medical office activity of M-13, Washington Avenue.

In addition, the I-675 work that has taken place north of downtown Saginaw will assist a growing Tittabawassee corridor that already is home to the major retail mall regionally, as well as growing hospital outpatient surgery sites and other businesses.

On the western edge of Saginaw County, improvements and road expansion on M-46 and local roads have been necessary because of the growing number of solar based companies that are locating in Saginaw County. The road network expansion has made possible much more anticipated expansion activity in

Thomas Township, potentially creating a new industry identity for Saginaw County.

Major Issues and Challenges:

- *The major challenge is preservation of the existing transportation system.*
- *Strategies to improve the safety of the system is another key issue.*
- *The large number of river crossings and bridges (228) in the county present special challenges for maintenance and replacement.*
- *Continued effective use of limited resources to maximize dollar investment impact on existing road systems to keep the existing network in vast majority "good condition".*
- *In collaboration with our partners at FHWA and MDOT continue creative approaches to solve funding challenges so that projects may proceed that will facilitate additional local employment growth with new business development.*

Public Transit

Public transit in Saginaw County began as a department of the City of Saginaw. Originally, it operated as a city bus service for residents of Saginaw. In the middle 1990's the service went to an "authority" status. Currently, STARS provides service in Saginaw city and several outside townships that have contracted with the authority for bus service in their community. The goal for the immediate future is to expand the number of townships inside Saginaw County to begin similar contractual relationships.

The STARS mission is to provide Saginaw with safe, efficient, dependable and affordable public transportation for all citizens seeking its services to work, doctors appointments, shopping or school.

That mission includes both traditional bus route service as well as lift service six days per week. The full schedule consists of eleven routes that incorporate community destinations such as shopping centers, schools and medical services sites. The utilization of service was up to 895,995 regular passengers in 2010, a significant increase of over 25% of recent count cycles. The lift service in 2010 counted 37,970 elderly passengers, and 88,860 additional disabled passengers. These numbers nearly tripled past performance figures and represents significant demand for services being addressed by the STARS programming.

STARS, as the public transportation system for the urbanized Saginaw area, travels over 1.5 million miles per year. The most recent customer survey feedback conducted during the months of October and November 2010 resulted

in a 90% satisfaction score in all measured categories. This document underscores the fact that more customers are more satisfied with STARS public transportation services in Saginaw County than in any other time in recent memory.

It appears that the consumers of the service are pleased that their needs of commuting around the community are being met in a timely and efficient manner.

The last few years have seen positive results to the renovations to the Transfer Plaza, which included a closed in waiting area complete with restrooms for customer comfort and convenience. As part of these renovations, STARS requested the closure of Weadock Avenue to benefit their site design. Closure of Weadock also benefited the design for the new I-675/M-13 interchange in the downtown area. In addition, the Operations Center was attended to with modifications to reduce building maintenance expenses and increase fare card revenues with improved customer service windows.

STARS recently passed a five (5) year renewal to insure its urban funding future. The length is the first time the community was given an option of such length and it embraced the proposal at the polls to the tune of 3 to 1. That was a huge victory margin in a tough economy.

STARS is an active participant in the SMATS transportation planning process, and historically there has been a close working relationship between the staff of both organizations, and that continues to be the case. In fact, SMATS is an active member of the STARS Transit Advisory Committee (TAC), an advisory body that has a direct communication link to the STARS Board of Directors.

It is significant to note that the STARS TAC maintains the appropriate involvement of agencies and officials that have a stake in the transit service to the community on behalf of the clients, customers and consumers that they are serving. The TAC membership also includes riders who are able to share firsthand experiences on issues of service delivery. This format creates a viable mechanism to provide STARS administration with valuable community input.

Major Issues and Challenges:

- *Service availability is limited – ability to expand and serve population needs is a key issue.*
- *Continue to find means to produce quality service in the most cost effective manner.*
- *Intermodal connections are currently often lacking.*
- *Continue to strengthen ties with Bay and Midland county transportation to strengthen regional transportation solutions.*

Air Transportation

Air transportation in the SMATS area is provided by MBS International Airport and Harry W. Browne Airport. Additional general aviation facilities are located outside the urbanized area at Frankenmuth and Chesaning.

MBS has only been known as “MBS” since 1994. Prior to that, it was known as Tri-City International Airport. The idea of developing an airport in the Tri-Cities area originated in the 1930’s. In 1941, one square mile of property was purchased by the cities of Midland, Bay, and Saginaw, in order to build an airport large enough to meet the anticipated needs of the communities. A little-known fact about the airport is that, because of World War II, the federal government took over MBS Airport, adding more land and constructing runways and taxiways, so that the government could station fighter aircraft that could be used to intercept bombers reroute to Detroit.

Today the airport is governed and operated by the MBS Airport Commission, consisting of politically appointed representatives of Saginaw, Bay, and Midland. That governing body employs an Executive Director to run the day-to day operations of the airport.

The airport has two main runways with lengths of 8002 and 6400 feet. Both of the runways are 150 feet wide. This allows for the airport to provide service to the commercial size jets that the major carriers utilize.

The airport has not been without its challenges. Michigan Department of Transportation statistics of “Michigan Air Demand” show that service demand peaked at MBS in 1998. Since that time, the airport’s passenger levels have dipped from a high of 589,798 in 1998 to 293,047 in 2010.

The air cargo side of the business has undergone an even steeper decline. In 2010, the airport handled 124,123 pounds of cargo, which is significantly down from the 1,426,197 total in 2005. These trends have several causes that the airport leadership are studying.

One development that will greatly increase activity at MBS in the near future is the airport commission approved a design in the fall of 2008 for a new terminal. The building is expected to be complete in three to five years. The new MBS terminal will cost approximately forty-eight (48) million dollars to build.

The project is eligible for funding under the Federal Aviation Administration’s Airport Improvement Program. In all, funding from FAA will make up about

seventy (70%) of the total cost of the new terminal project. Passenger fee's and MBS savings funds make up the additional monies.

MBS must compete with other regional airports such as Bishop Airport in Flint, and Capital City Airport in Lansing. As it stands, MBS Airport is a middle to low middle activity airport that stands to benefit from its new terminal. However keys to success remain major carrier presence, competitive price structures and freight activity that is driven by business and industry .

Some business alliances have discussed the concept of improving access to MBS. This is an area of interest to both SMATS and to BCATS, the neighboring MPO in Bay County. To date, no specific studies or plans have been developed.

It is important to note the airport has a local alliance of key business consumers of business flyers from the Tri-City area that have joined forces and committed all their business to go through MBS Airport. This group consists of businesses that range from major international companies to local family-run operations that conduct significant business in locations outside of the Tri-Cities.

The **Harry W. Browne Airport** is located in Buena Vista Township and owned by Saginaw County. The airport is located in close proximity to the extensive automobile manufacturing operations that are located in Buena Vista Township and surrounding areas.

The airport currently has some level of parts supplier business activity, but is more known as a local airport for airplane enthusiasts to fly in and out of, as well as house their personal planes. However, the airport has the potential to become a major contributor to the type of easy access that modern business requires to meet the deadline activities so necessary to be successful in a competitive environment. To enhance the airport's ability to serve the needs of business and industry, recent reconstruction of Towerline Road to all-season standards allows for the delivery of automotive parts to and from the airport. These improvements and other planned improvements will be an economic benefit to the region.

Specifically, the Airport Board, understanding the opportunity to enhance the air activity on the property, has formulated an Airport Capital Improvement document that would funnel nearly \$6,000,000 into the facility in the coming years. The majority of these dollars are Federal targeted to expand, enhance the totality of the facility from the administrative operations to runway and taxiway rehabilitation and lighting.

The Federal dollars involved in this plan would significantly upgrade the economic impact potential of the airport to the local manufacturers that are located strategically to airport services.

The total improvements proposed for Harry Browne Airport are described in detail in the Michigan State Block Grant Program Form that lists its Airport Capital Improvement Program for FY 2012 through 2017.

Major Issues and Challenges:

- *Achieving increased air carrier activity at the MBS Airport and establishment of a major discount carrier.*
- *Increasing connectivity with other means of transportation - such as large trucks for freight movement.*
- *Funding to update facilities.*
- *Increasing accessibility to/from the road network.*

Rail Transportation

Saginaw County seems to be consistent with the statewide trends as it applies to railroad activities. The active rail lines are mainly used for the shipping of agricultural products. After that, chemicals, automobile parts, coal, and other products also are transported along the existing railroad lines.

The common business plan for rail these days is for the major rail carriers to eliminate service and then sell the tracks to short line companies who then can operate at less cost. The rail lines represented in the SMATS area include the Huron & Eastern Railway, Saginaw Bay Southern, and the Lake State Railway.

In terms of trends, the situation is that while rail miles have decreased in the past decade, the amount of carloads has grown by nearly 11%. Twenty-one percent of Michigan's rail miles are state owned. The state owns 872 miles of right-of-way, of which the vast majority are already in use. Maintenance is partially at state expense.

In the SMATS area, the rail hauling of chemicals is of particular importance. Most of the material comes to and from a major manufacturer in the region, so the activity regarding chemicals in this region is at a higher than normal level. This also translates to a higher than normal risk to the community in regards to the transport of hazardous materials. In the SMATS area, it is important that the personnel and process include coordination with county emergency management. In this regard, SMATS staff works closely with County Emergency Management and Homeland Security on a variety of issues.

The other major trend concerning rail lines is the conversion of abandoned lines to “railtrails” for recreational use as non-motorized pathways. The Saginaw Valley Rail Trail has been developed in this manner, and several other rail corridors are proposed for conversion to pathway use.

MDOT has recently (September 2011) completed an updated State Rail Plan. That plan, available at <http://www.michigan.gov/mdot/0,4616,7-151-11056-242455--,00.html>, should be considered a companion document to this MTP and a source of more detailed information on rail system issues and proposed improvements. The State Rail Plan lists several projects in the Saginaw area that will provide track upgrades and crossing improvements.

Major Issues and Challenges:

- *Work with employers, groups, and political leaders to expand the role of rail in providing manufacturing its necessary supplies and materials.*
- *Use new technology like ITS to divert traffic and or minimize traffic delays caused by rail crossings.*
- *Improve safety at rail crossings.*

Water Transportation

The Saginaw River is one of Michigan’s most important ports. It has been utilized for shipping since the early 1800’s. The St. Lawrence Seaway opened in 1957, allowing access by ocean-going ships as well as Great Lakes vessels.

Saginaw’s commercial harbor is highly ranked in value of commodities, number of individual terminals, cargo diversity and total tonnage from Michigan ports.

The major commodities be moved include limestone, sand, coal, salt, fertilizers, cement, petroleum, and chemicals. These products serve the manufacturing, agricultural, and construction industries of the region and well beyond. There are approximately 20 marine terminals located on the river from Saginaw to the mouth. These terminals handle about five million tons of cargo annually, and serve well over 300 ships annually.

Maintenance of the shipping channel has been an issue for many years. Unless the channel is periodically dredged to maintain its depth, the river will become unusable to cargo vessels. Loss of the shipping channel option would require materials that are now being moved by boat to be transported on the highway system, increasing traffic volumes and placing additional wear and tear on the roads. Beginning in late 2011, the Detroit District Army Corps of Engineers will oversee maintenance dredging of the Saginaw River and Saginaw Bay.

This project will place the dredged cubic yards into the disposal facility on the Saginaw/Bay county line. The project cost could be up to five million dollars.

More than \$12.8 million has gone into dredging projects since 2009, about \$2.36 million of which came from Recovery Act Funding in 2009. These investments and activities will preserve the Saginaw River's history in continuing to play a vital role in the region's economy.

In addition to commercial shipping, the river system is used extensively for recreational boating and fishing. In the SMATS area, recent efforts have focused on the construction of additional boat launching facilities.

Major Issues and Challenges:

- *Maintain the Saginaw River shipping channel.*
- *Encourage partnerships between shippers, government, and other entities to promote the river shipping industry and increase its efficiency.*

Non-Motorized Transportation

The development of recreational pathways has a long history in Saginaw County. The river walk in the City of Saginaw and the Saginaw Valley Rail Trail (SVRT) are among the first non-motorized pathway facilities to be developed in the county. These accomplishments occurred in Saginaw County as a result of local initiatives.

When SAFETEA-LU became the national transportation bill, the guidelines contained language that further encouraged development of bicycle and other non-motorized transportation facilities.

Efforts continue moving forward on the master vision to have the trails connect through the entire region. MDOT commissioned the East Central Michigan Council of Governments to develop a non-motorized report document in the 14 county region that includes Saginaw County. This work was meant to be a future road map of current and future vision requiring intergovernmental cooperation in regards to trail projects in the short and long term future that would result in maximizing trail dollars to projects that connect and extend.

Currently, efforts continue moving forward on the overall vision to develop an interconnected network of trails throughout the entire region. On board with this agenda are various neighboring townships, as well as counties and educational institutions.

Several current projects are funded and will be constructed in the near future:

Thomas Township. In cooperation with Thomas Township, MDOT will construct a 2.2 mile non-motorized path from the Saginaw Valley Rail Trail to Shields Drive. The pathway will create a direct connection to schools, libraries, and shopping areas while linking the north and south portions of the township by providing a crossing at M-46.

Saginaw and Kochville Townships. In cooperation with Saginaw Township and Kochville Township, MDOT will construct a 2.5 mile non-motorized path along portions of Consumers Energy right-of-way from Elmer Lange Park to an existing non-motorized pathway at McCarty Road.

Saginaw Valley Rail Trail. Saginaw County Parks and Recreation will develop a 1.4 mile connection along Stroebel Road between the existing Saginaw Valley Rail Trail (SVRT) and the pathway along Center Road. This project will provide the final connection between the SVRT and the pathway system in Saginaw Charter Township.

In general, there are numerous non-motorized projects proposed in Saginaw County. These projects are in various stages of planning. Figure 2-3 is a map that displays both existing and proposed non-motorized trails in Saginaw County. This map is based on the information that is currently available to the Saginaw Area GIS Authority regarding both existing pathways and additional projects that are in various stages of discussion and planning.

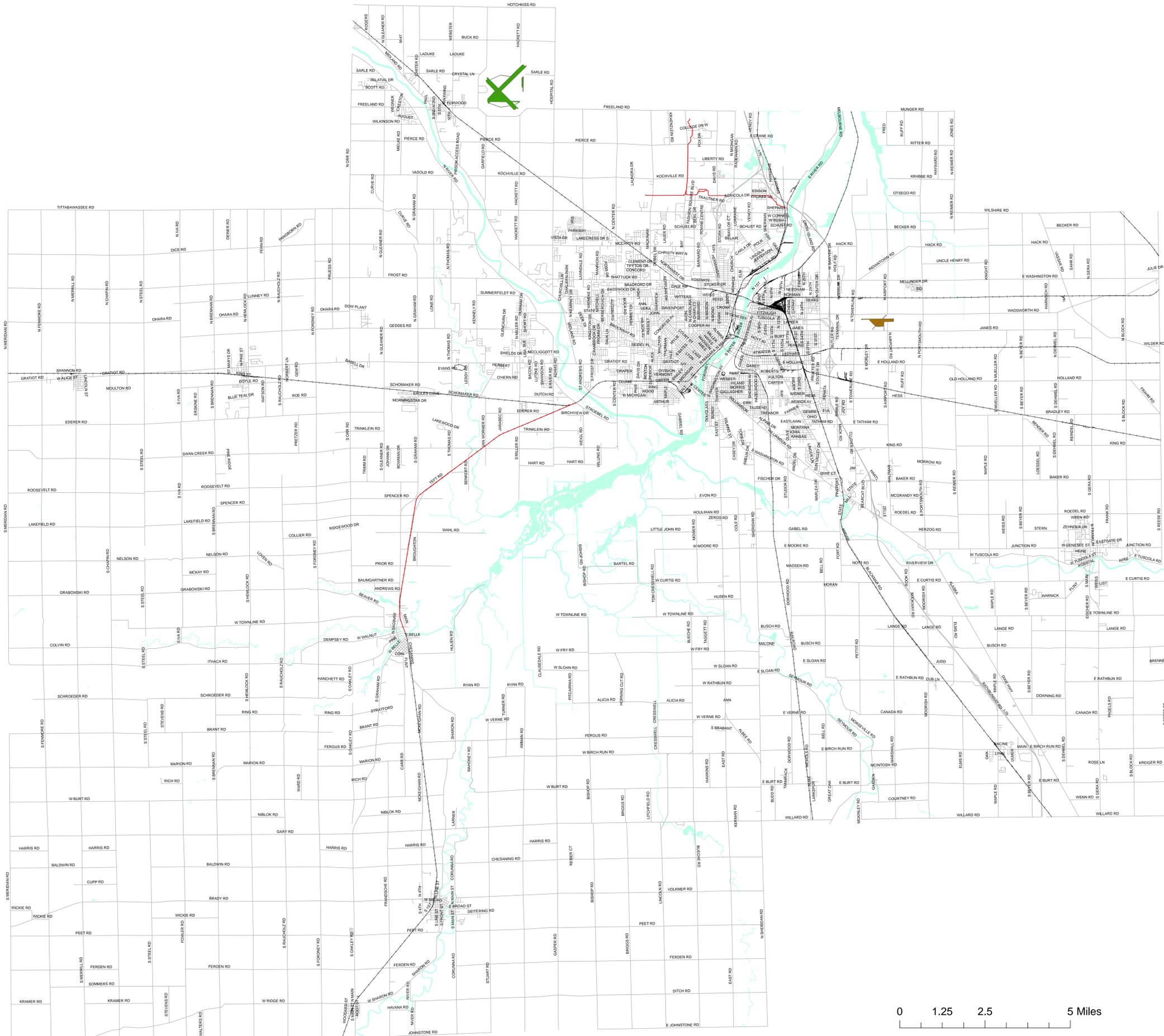
Future efforts will continue to focus on the long-term development of an interconnected network of non-motorized routes both within the county and the surrounding region. These projects move forward as funding permits, involving both Michigan Department of Transportation grants and local funds.

SMATS will continue to promote non-motorized planning activities with ongoing efforts to connect other trails in the region. SMATS works in conjunction with the efforts and staff of MDOT, local townships, and groups of local interested/concerned citizens.

Major Issues and Challenges:

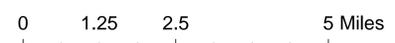
- *Obtain funding and community support to develop regionwide connectivity.*
- *Funding commitments need to address upkeep and maintenance obligations and responsibilities.*

Saginaw County Major Transportation Facilities



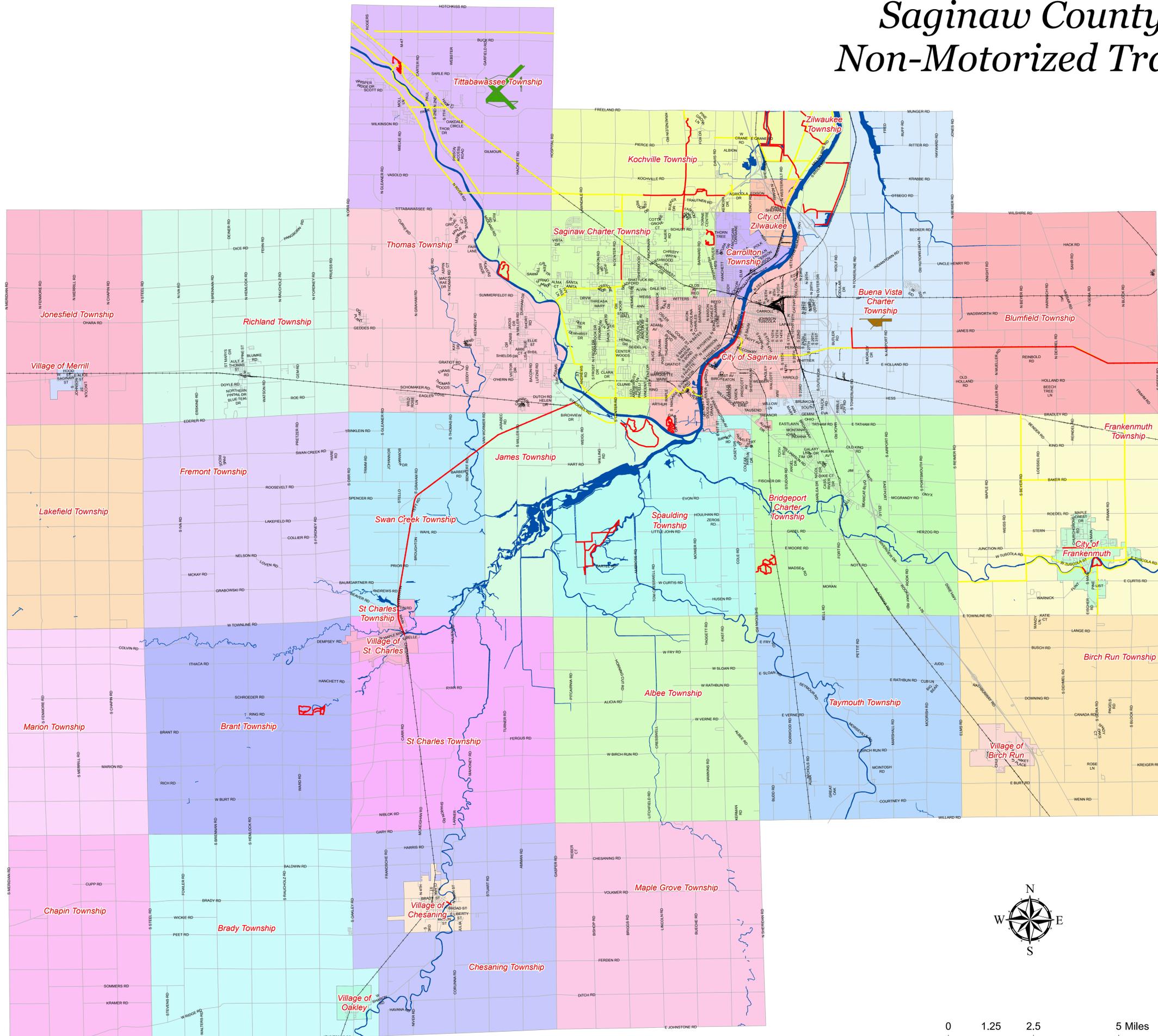
LEGEND

-  Countywide Streets
-  Rail Trail
- County Airports**
-  Harry Browne Airport
-  MBS International Airport



created 5-22-2007

Saginaw County Non-Motorized Trails



LEGEND

- Existing Trails
- Proposed Trails
- County Streets
- County Airports**
- Harry Browne Airport
- MBS International Airport



created: 2-28-2012

Chapter 3

Transportation Planning Goals, Objectives and Performance Measures

This chapter presents the goals and objectives that have been established for the SMATS transportation planning process. Since transportation has such a significant impact on the communities that SMATS serves, the Metropolitan Transportation Plan must reflect the values and desires of these communities and their residents. The goals and objectives provide guidance to the overall planning process, and they also provide a means of evaluating progress in implementing the plan.

In addition, SAFETEA-LU identified eight planning factors that must be considered in the development of the SMATS Metropolitan Transportation Plan (MTP). These factors were integrated with the long-range goals identified in previous SMATS plans to formulate an updated set of goals and objectives for the 2040 MTP.

Finally, *performance measures* are ways of monitoring implementation of the MTP by providing a means to measure progress in achieving the goals and objectives. Performance measures may be either quantitative or qualitative. Each major goal and listing of objectives is followed by the identification of several relevant performance measures.

Goal 1: Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency.

Objectives:

1. Relieve traffic congestion and minimize travel times.
2. Improve access to employment centers by workers.
3. Improve the movement of freight and services.
4. Improve access to intermodal facilities such as ports, airports, and transit centers.
5. Maximize investments in the transportation system from all sources, including the private sector.

Performance Measures:

- a. Reduced congestion on major corridors.
- b. Reduced transit operating cost
- c. Increased freight traffic volumes

- d. Increased level of private sector investment in transportation improvements.
- e. Increased availability and use of intermodal facilities.
- f. Increased transit ridership.

Goal 2: Increase the safety and security of the transportation system for motorized and non-motorized users.

Objectives:

1. Provide for safer travel by all transportation modes, including pedestrian, bicycling, transit, and automobile.
2. Encourage measures that reduce congestion.
3. Encourage strategies that improve emergency response to accidents.
4. Encourage the use of Intelligent Transportation Systems (ITS) to monitor the transportation system.
5. Expand the availability of non-motorized routes.
6. Promote increased safety for the movement of hazardous materials.

Performance Measures:

- a. Reduced number of fatalities and serious accidents.
- b. Improved access by emergency vehicles to accident scenes and disabled vehicles.
- c. Expanded availability and participation in safety education programs for motorists, bicyclists, and pedestrians.
- d. Increased availability of dedicated non-motorized routes in appropriate locations.
- e. Reduced number of incidents involving hazardous materials.

Goal 3: Increase the accessibility and mobility of both people and freight.

Objectives:

1. Develop an integrated transportation system that includes efficient connections between modes.
2. Maximize access to the transportation system by underserved and disadvantaged persons.
3. Provide expanded or enhanced capabilities for the movement of people.
4. Provide expanded or enhanced capabilities for the movement of freight.
5. Provide enhanced access to and from major land uses and activity centers, including residential, employment, retail, and services.

Performance Measures:

- a. Improved movement of freight as reported by business community.
- b. Reduced number of deficient road segments.
- c. Improved system performance in target corridors, based on average travel rates.
- d. Increased availability of transit service to target populations.
- e. Increased percentage of persons using alternate modes, especially during peak hours.

Goal 4: Protect and enhance the environment, promote energy conservation, improve quality of life, and promote consistency between transportation improvements and state and local planned growth and economic development patterns.

Objectives:

- 1. Encourage measures to reduce vehicle emissions.
- 2. Encourage measures to reduce fossil fuel consumption.
- 3. Encourage measures to reduce traffic noise.
- 4. Encourage measures to reduce air and water pollution.
- 5. Conserve cultural and historic resources.
- 6. Preserve prime agricultural lands, open space, and unique resources.
- 7. Preserve natural habitats, including wetlands.
- 8. Promote the redevelopment of brownfield sites.
- 9. Promote non-motorized travel.
- 10. Promote traffic calming measures.
- 11. Develop transportation projects in coordination with local land use plans.
- 12. Encourage the integration of land use and transportation in the community planning process.
- 13. Promote environmental justice.

Performance Measures:

- a. Avoidance or mitigation of environmental impacts by transportation projects.
- b. Improved inter-agency communication and cooperation.
- c. Increase in compact and mixed-use development that may be served by transit and non-motorized facilities.
- d. Improved connections between major land uses and activity centers.
- e. Preservation of neighborhoods, and cultural and historic resources.

Goal 5: Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight.

Objectives:

1. Improve intermodal connectivity for people.
2. Improve intermodal connectivity for freight.
3. Encourage improved integration of people and freight-serving modes, and minimize conflicts between modes.
4. Minimize transportation barriers for persons who are mobility-limited, elderly, and persons who lack access to automobiles.

Performance Measures:

- a. Reduced travel times and costs.
- b. Greater choice in modes for system users.
- c. More efficient movement of freight, based on time and cost.
- d. Greater access to transportation system by traditionally underserved or disadvantaged populations.

Goal 6: Promote efficient system management and operation.

Objectives:

1. Encourage land development patterns that promote transportation efficiency.
2. Maximize the use of the existing transportation system to avoid unnecessary capacity expansions.
3. Eliminate conflicts between various transportation modes.
4. Relieve traffic congestion and minimize travel times.
5. Incorporate new technologies to enhance capacity and extend the useful life of existing facilities.

Performance Measures:

- a. Reduced travel times and costs.
- b. Increase in compact and mixed-use development that may be served by transit and non-motorized facilities.
- c. Reduced commuting times.
- d. Access to safe and convenient facilities for walking, bicycling, and transit.
- e. Reduction in identified deficiencies in current system (pavement, intersections).
- f. Increased use of ITS technology.

Goal 7: Emphasize the preservation of the existing transportation system.

Objectives:

1. Assign top priority to capital improvements designed to preserve existing capacity.
2. Incorporate new technologies as appropriate to maximize the use of the existing transportation system.
3. Encourage mechanisms to achieve improved maintenance of the existing system.

Performance Measures:

- a. Improvement in pavement conditions of roads by functional classification, as reported by PASER ratings.
- b. Fewer disruptions of homes, businesses, and mobility by transportation projects.
- c. Improved project benefits relative to costs.
- d. Avoidance of premature road extensions into undeveloped areas; promotion of more compact and efficient land use patterns.
- e. Extended life span of pavements.

Goal 8: Promote cooperative inter-county efforts to improve regional transportation facilities.

Objectives:

1. Work with adjacent counties, MPO's, and regional agencies to address regional transportation issues facing the Great Lakes Bay Region.
2. Encourage appropriate plans and studies for the improvement of major inter-county transportation facilities that serve the Great Lakes Bay Region. Examples include regional airports, major road corridors, railroads, ports, and non-motorized pathways.

Performance Measures:

- a. Improved inter-county cooperation on transportation issues and needs.
- b. Coordinated planning for regional transportation facility improvements.

Chapter 4

Population and Employment Trends

This chapter provides an overview of the major demographic trends that shape Saginaw County. The travel demand model that has been developed for the Great Lakes Bay Region (discussed in the following chapter) is highly dependent on various social and economic data. This required the development of an extensive database on population and employment.

Socio-economic data were developed for 2009 (the model base year); forecasts were developed for 2020, 2030 and 2040. Values for population and occupied households were aggregated from the 2000 census blocks to arrive at totals for 2000. MPO staff used this data and projections for each minor civil division as well to develop the population and occupied household values for the 2009 base year and the forecast years of 2020, 2030 and 2040. The population and occupied household data was also reviewed by local community representatives to determine any needed adjustments based on local conditions. As the model's development progressed, data on population and households from the 2010 Census was also incorporated as it became available.

Employment data were obtained from the combination of the Michigan Employment Security Commission (MESC) and the propriety data bases available from *Claritas* and *Hoovers*. The resulting database was then extensively reviewed and updated with local community input. The employment data for 2009, 2020, 2030 and 2040 were developed using growth rates based on the REMI (Regional Econometric, Inc.) projections as well as local knowledge of expected development and changes in employers.

SMATS staff and committees reviewed the estimates and projections, and made adjustments based on their local knowledge and understanding of the unique local circumstances in each community. Finally, the base year and forecast data were approved for use in the model's development by the SMATS Technical and Policy committees in October 2011.

Population Changes, 2000 - 2010

Table 4-1 shows population data for Saginaw County and its townships, cities, and villages. Data is included for the 2000 and 2010 Censuses, and forecasts are provided for 2020, 2030, and 2040.

The 2010 Census reports that Saginaw County's population declined by 4.7% from 2000 to 2010, a loss of 9,887 persons. At the local level, the greatest population losses occurred in the City of Saginaw (-16.6%) and Buena Vista Charter Township (-15.9%). However, some communities did experience population growth. In the SMATS urbanized area, Saginaw Charter Township and Thomas Township grew by 3.0% and 0.9% respectively. In the northwest part of the county, the Tittabawassee Township population increased by 26.2% and Kochville Township, which includes Saginaw Valley State University, saw its number of residents grow by over 1,800 people for an increase of 56.6%.

Figure 4-1 provides a visual presentation of the population changes that occurred in Saginaw County from 2000 to 2010.

For comparison, during 2000 to 2010 the Bay County population decreased by 2.2% and Midland County grew by 0.9%. The overall state population declined by 0.6%.

Population Forecasts, 2010 – 2040

Table 4-1 also shows the population forecasts that have been developed as part of the transportation modeling process. These forecasts predict very modest population growth of 3.6% for the county from 2010 to 2040. This works out to a growth rate of only 0.12% per year. According to these forecasts, the county population will remain above 200,000 and increase to slightly above 207,000 by 2040. However, the population is not expected to return to the level seen in 2000.

At the local level, many of the communities within the county are expected to continue to lose population, including the City of Saginaw. However, there are exceptions to this trend as well. Several townships, including Saginaw, Thomas, Tittabawassee, and Kochville, are expected to gain population. The forecasts indicate that the City of Frankenmuth will also grow.

For comparison of the adjacent counties in the Great Lakes Bay Region, the forecasts show growth of 2.2% in Bay County's population by 2040, and Midland County's population will grow by 11% in this period. Figure 4-2 provides a graphic that illustrates the population forecasts

Employment Forecasts, 2009 – 2040

Employment forecasts for the county and local units were also developed, and these are shown in Table 5-2. Employment is further broken down into *retail*, *service*, and *other* categories. The *other* category includes manufacturing employment.

The forecasts indicate that employment will grow by over 13,000 jobs, a growth rate of 11.1% over the 2009 base year. Job growth is expected to be largely concentrated in the service employment category. Employment in “other” employment, which includes manufacturing jobs, is expected to decline slightly (-4.4%) for the period. Employment is expected to remain concentrated in the City of Saginaw and the adjacent townships. However, additional small urban areas such as Frankenmuth, Birch Run, Chesaning, and St. Charles will also contribute to the county’s employment base. These employment trends are also illustrated by Figure 4-3.

Table 4-1, Population Changes and Forecasts, appears on the following page.

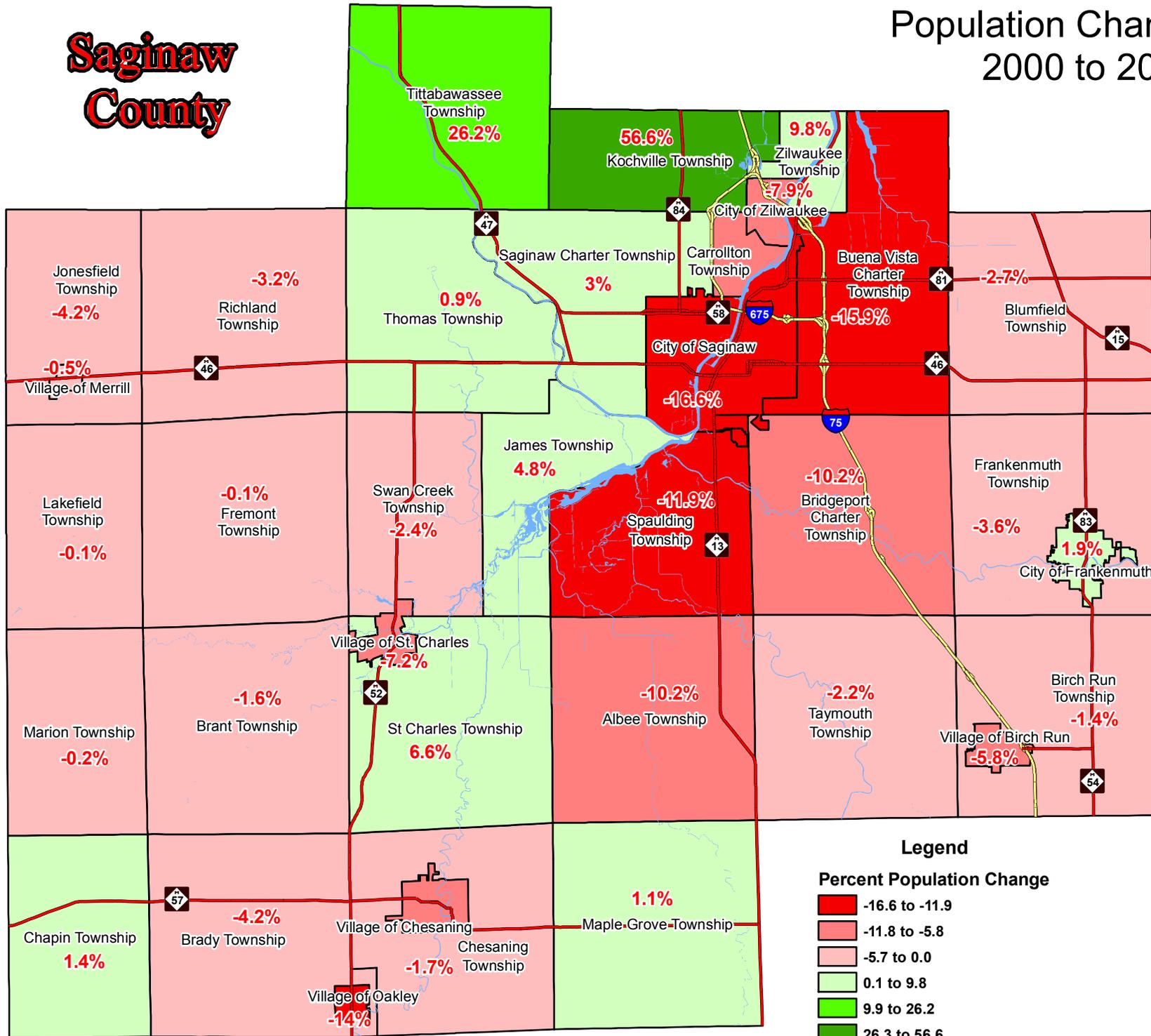
Area	2000 Census Population	2010 Census Population	Percent Change 2000 to 2010	2020 Estimated Population	2030 Estimated Population	2040 Estimated Population	Estimated Change 2010 to 2040
Jonesfield Twp	928	889	-4.2%	853	834	809	-9.0%
Merrill Village	782	778	-0.5%	746	730	709	-8.9%
Richland Twp	4,281	2715	-3.2%	2,605	2,548	2,474	-8.9%
Hemlock	No data	1429	No data	1,371	1,340	1,302	-8.9%
Thomas Twp	11,877	11985	0.9%	12,064	12,385	12,633	5.4%
Tittabawassee Twp	7,706	9726	26.2%	13,370	17,274	21,110	117.0%
Kochville Twp	3,241	5078	56.6%	5,767	6,431	7,062	39.1%
Zilwaukee Twp	61	67	9.8%	64	62	60	-10.4%
Zilwaukee City	1,801	1658	-7.9%	1,602	1,577	1,543	-6.9%
Saginaw Twp	39,657	40851	3.0%	42,137	44,094	45,793	12.1%
Carrollton Twp	6,598	6103	-7.5%	5,929	5,875	5,784	-5.2%
Saginaw City	61,792	51512	-16.6%	49,013	47,476	45,625	-11.4%
Buena Vista Twp	10,316	8676	-15.9%	8,355	8,199	7,990	-7.9%
Blumfield Twp	2,014	1960	-2.7%	1,885	1,849	1,798	-8.3%
Frankenmuth Twp	2,033	1959	-3.6%	1,940	1,893	1,831	-9.6%
Frankenmuth City	4,854	4944	1.9%	5,057	5,215	5,309	7.4%
Birch Run Twp	4,535	4473	-1.4%	4,346	4,308	4,243	-5.1%
Birch Run Village	1,656	1560	-5.8%	1,516	1,504	1,483	-4.9%
Taymouth Twp	4,624	4520	-2.2%	4,333	4,235	4,111	-9.0%
Bridgeport Twp	11,709	10514	-10.2%	10,062	9,815	9,500	-9.6%
Spaulding Twp	2,409	2120	-11.9%	2,031	1,983	1,921	-9.4%
James Twp	1,930	2023	4.8%	1,933	1,883	1,821	-10.0%
Albee Twp	2,338	2160	-7.6%	2,052	1,985	1,905	-11.8%
Maple Grove Twp	2,640	2668	1.1%	2,554	2,493	2,415	-9.5%
Chesaning Twp	2,308	2269	-1.7%	2,160	2,095	2,017	-11.1%
Chesaning Village	2,551	2394	-6.2%	2,310	2,273	2,221	-7.2%
St. Charles Twp	1,385	1477	6.6%	1,417	1,388	1,348	-8.7%
St. Charles Village	2,178	2022	-7.2%	1,949	1,914	1,868	-7.6%
Swan Creek Twp	2,368	2310	-2.4%	2,240	2,217	2,179	-5.7%
Fremont Twp	2,099	2096	-0.1%	2,003	1,949	1,884	-10.1%
Lakefield Twp	1,030	1029	-0.1%	990	971	946	-8.1%
Marion Twp	925	923	-0.2%	884	862	835	-9.5%
Brant Twp	2,021	1989	-1.6%	1,912	1,874	1,825	-8.2%
Brady Twp	2,009	1924	-4.2%	1,856	1,825	1,782	-7.4%
Oakley Village	337	290	-14.0%	278	271	263	-9.3%
Chapin Twp	1,045	1060	1.4%	1,019	999	971	-8.4%
County Totals	210,038	200151	-4.7%	200,603	204,626	207,370	3.6%

**Table 4-2. Employment Forecasts for Saginaw County and Selected Communities
2009 -- 2040**

Community	Retail 2009	Retail 2020	Retail 2030	Retail 2040		Service 2009	Service 2020	Service 2030	Service 2040
County Total	16,642	16,770	17,029	17,192		56,866	61,688	67,625	71,319
Saginaw City	1786	1806	1819	1824		20,010	21,829	24,012	25,397
Saginaw Twp	5006	5056	5152	5217		14608	16021	17652	18703
Thomas Twp	881	889	905	915		1909	2072	2278	2410
Tittabawassee Twp	498	498	501	503		1392	1436	1515	1547
Kochville Twp	2518	2545	2596	2630		3269	3522	3875	4088
Buena Vista Twp	762	767	777	786		2390	2563	2792	2930
Bridgeport Twp	504	506	511	514		1980	2145	2354	2486
Birch Run Village	1613	1624	1651	1667		1174	1284	1421	1511
Frankenmuth City	1334	1345	1371	1386		3208	3493	3854	4088
Chesaning Village	443	445	450	454		1086	1181	1300	1376
Community	Other 2009	Other 2020	Other 2030	Other 2040		Total 2009	Total 2020	Total 2030	Total 2040
County Total	43,740	43,233	42,203	41,772		117,233	121,682	126,848	130,283
Saginaw City	11,843	11,667	11,292	10,931		33,639	35,302	37,123	38,152
Saginaw Twp	6348	6441	6364	6302		25,947	27,516	29,167	30,222
Thomas Twp	2773	2859	3036	3566		5563	5820	6219	6891
Tittabawassee Twp	1717	1683	1654	1626		3607	3617	3670	3676
Kochville Twp	1992	1950	1917	1891		7779	8028	8388	8609
Buena Vista Twp	7331	7112	6686	6398		10,483	10,442	10,255	10,114
Bridgeport Twp	2390	2346	2288	2249		4874	4997	5153	5249
Birch Run Village	360	353	346	340		3147	3261	3418	3518
Frankenmuth City	1435	1417	1391	1362		5977	6248	6608	6836
Chesaning Village	753	735	715	698		2282	2361	2464	2528

Saginaw County

Population Change from 2000 to 2010



Legend

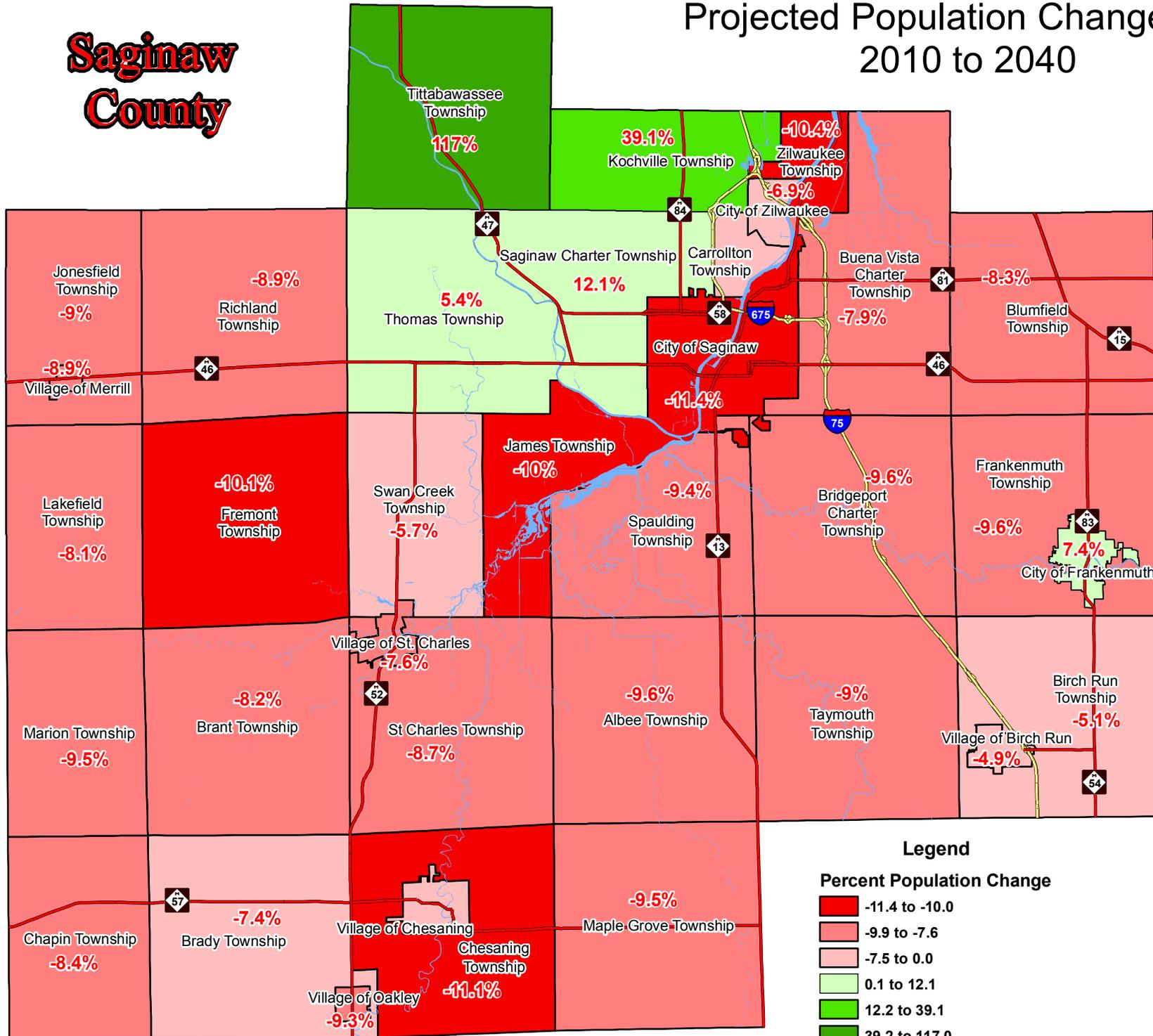
Percent Population Change

- 16.6 to -11.9
- 11.8 to -5.8
- 5.7 to 0.0
- 0.1 to 9.8
- 9.9 to 26.2
- 26.3 to 56.6



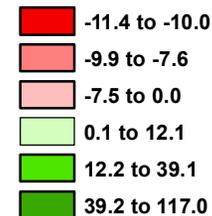
Saginaw County

Projected Population Change from 2010 to 2040



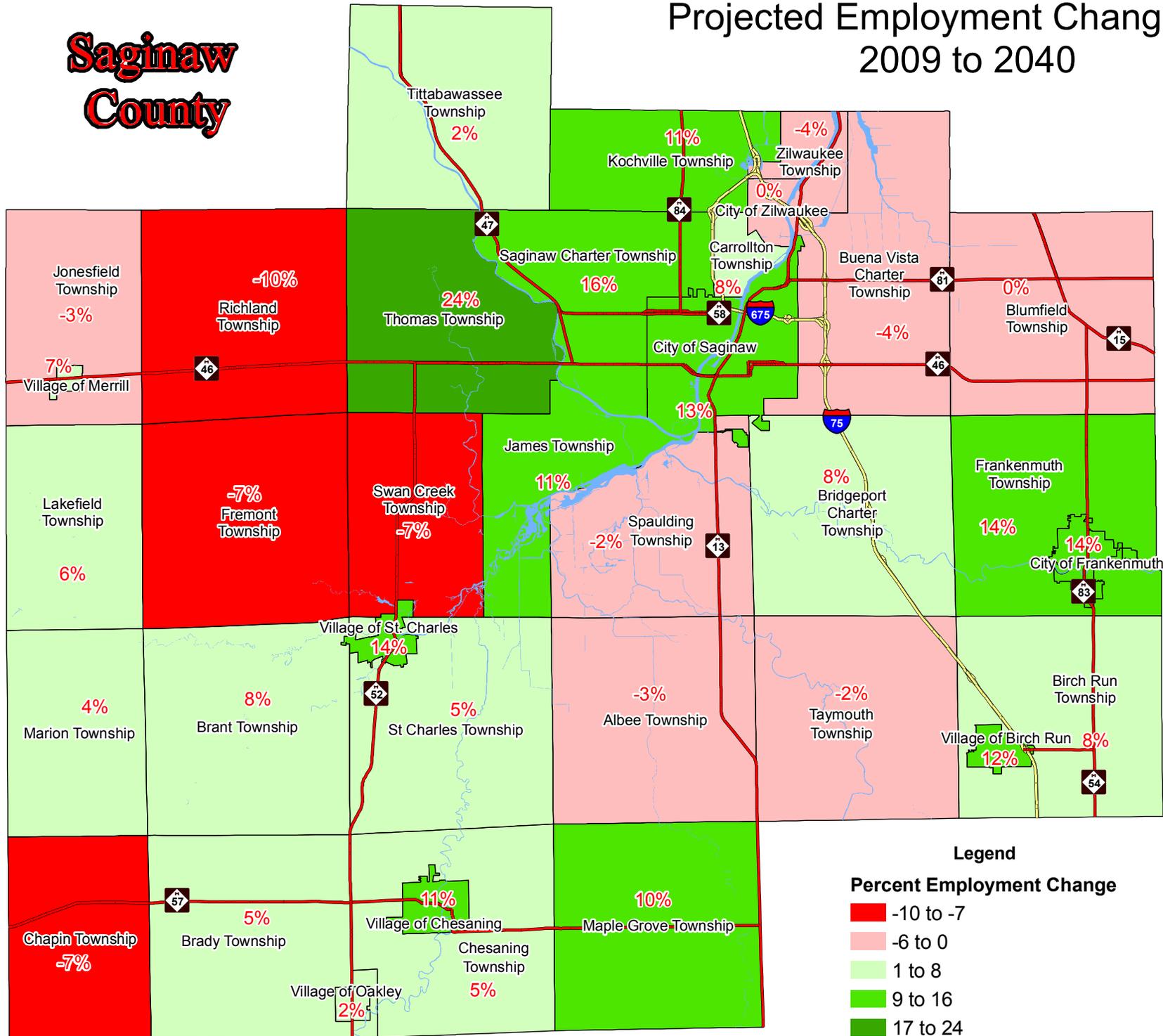
Legend

Percent Population Change



Saginaw County

Projected Employment Change from 2009 to 2040



Legend

Percent Employment Change

- 10 to -7
- 6 to 0
- 1 to 8
- 9 to 16
- 17 to 24



Chapter 5

Urban Area Travel Demand Modeling Process and Results

Because of the interaction of traffic between Saginaw, Bay City and Midland it was decided that the travel patterns of the area could be better modeled if a regional model was built. The travel demand model used for the Saginaw Area Transportation Study (SMATS) 2040 Metropolitan Transportation Plan (MTP) is a regional model, referred to as the Great Lakes Bay Region (GLBR) Model that includes Saginaw, Bay and Midland Counties. This effort required coordination and cooperation between Saginaw Metropolitan Area Transportation Study (SMATS), Bay City Area Transportation Study (BCATS), Midland County Road Commission and the City of Midland.

The urban area travel demand modeling process for the Saginaw County portion of the GLBR Model was a cooperative effort between the Saginaw Metropolitan Area Transportation Study (SMATS), being the Metropolitan Planning Organization (MPO), and the Michigan Department of Transportation, Statewide and Urban Travel Analysis Section (MDOT). MDOT provided the lead role in the process and assumed responsibility for modeling activities with both entities reaching consensus on selective process decisions. The local transportation planning agency is the MPO, comprised of representatives of local governmental units and is the umbrella organization responsible for carrying out transportation planning in cooperation with MDOT and the Federal Highway Administration. This is typically accomplished by full coordination of the local agencies with the MPO.

The results of the modeling effort is to provide an important decision making tool for the MPO Metropolitan Transportation Plan development as well as any transportation related studies that might follow. The modeling process is a systems-level effort. Although individual links of a highway network can be analyzed, the results are intended for determination of system-wide impacts. At the systems level, impacts are assessed on a broader scale than the project level.

The travel demand modeling for SMATS has been completed through the use of TransCAD software utilized by MDOT. The model is a computer estimation of current and future traffic conditions and is a system-level transportation planning model. Capacity deficiencies are determined using a Level of Service D capacity.

The urban travel demand forecasting process used has seven phases:

1. **Data Collection**, in which socio-economic and facility inventory data are collected.
2. **Trip Generation**, which calculates the number of person trips produced in or attracted to a traffic analysis zone (TAZ).
3. **Trip Distribution**, which takes the person trips produced in a TAZ and distributes them to all other TAZs, based on attractiveness of the zone.
4. **Mode Choice**, which assigns person trips to a mode of travel such as drive alone, shared ride 2, shared ride 3+, walk to transit, park and ride transit.
5. **Assignment**, which determines what routes are utilized for trips. There is a highway assignment and a transit assignment.
6. **Model Calibration/Validation**, which is performed at the end of each modeling step to make sure that the results from that step are within reasonable ranges. The final assignment validation involves verifying that the volumes (trips) estimated in the base year traffic assignment replicate observed traffic counts.
7. **System Analysis**, tests alternatives and analyzes changes in order to improve the transportation system.

There are two basic systems of data organization in the travel demand forecasting process. The first system of data is organized based on the street system. Roads with a national functional class (NFC) designation of "minor collector" and higher are included in the network. Some local roads are included to provide connectivity in the network or because they were deemed regionally significant. The unit of analysis is called a "link." Usually, a link is a segment of roadway which is terminated at each end by an intersection. In a traffic assignment network, intersections are called "nodes." Therefore, a link has a node at each end.

The second data organization mechanism is the Traffic Analysis Zones (TAZ). TAZs are determined based upon several criteria, including similarity of land use, compatibility with jurisdictional boundaries, the presence of physical boundaries, and compatibility with the street system. Streets are generally utilized as zone boundary edges. All socio-economic and trip generation information for both the base year and future year are summarized by TAZ. The Traffic Analysis Zones used for model development are depicted on a series of maps that are on file with the MPO and available for viewing at the SMATS office. They have not been reproduced here due to space limitations.

The two data systems, the street system (network) and the TAZ system (socio-economic data), are interrelated through the use of "centroids." Each TAZ is represented on the network by a point (centroid) which represents the weighted center of activity for that TAZ. A centroid is connected by a set of links to the adjacent street system. That is, the network is provided with a special set of links for each TAZ which connects the TAZ to the street system. Since every TAZ is connected to the street system by these "centroid connectors," it is possible for trips from each zone to reach every other zone by way of a number of paths through the street system.

Network

A computerized "network" (traffic assignment network) is built to represent the existing street system. The GLBR Model network is based on the Michigan Geographic Framework version 10 and includes most streets within the study area classified as a "minor collector" or higher by the national functional classification system. Other roads are added to provide continuity and/or allow interchange between these facilities.

Transportation system information or network attributes required for each link include facility type, area type, lane width, number of through lanes, parking available, national functional classification, traffic counts (where available), and volumes for level of service D (frequently described as its capacity). If the information is not the same for the entire length of a link, the predominant value is used. The network attributes were provided to the MPO and MDOT staff by the respective road agencies, with the exclusion of link capacity. The link capacity was determined by utilizing the Capacity Calculator program which takes into account the network attributes and sets a capacity that would approximate a level of service "D" or acceptable level of traffic. Higher volume to capacity ratios are characterized by: stop-and-go-travel, reduced flow rates and severe intersection delays. This typifies unacceptable or deficient traffic conditions.

The street network is used in the traffic assignment process. The traffic assignment process takes the trip interactions between zones from trip distribution and loads them onto the network. The travel paths for each zone-to-zone interchange are based on the minimum travel time between zones. They are calculated by a computer program which examines all possible paths from each origin zone to all destination zones. The shortest path is determined by the distance of each link and the speed at which it operates. The program then calculates travel times for all of the possible paths between centroids and records the links which comprise the shortest travel time path.

The transit network is used in the transit assignment process and overlays the street network as a route system. It reflects the current fixed route system available for the base year. It has its own set of attributes such as bus headway, speed and rider fee. Person trips that are determined to be transit trips are assigned to this network.

Speeds used to calculate minimum travel times are based on each link's national functional classification, facility type, and area type. Speeds represent a relative impedance to travel and not posted speed limits.

Socio-Economic Data

Travel demand models are driven, in part, by the relationship of land use activities and characteristics to the transportation network. Specific inputs to the modeling process are land use activity including the number of households, population-in-households, vehicles, and employment located in a given transportation analysis zone (TAZ). The modeling process translates this data into vehicle trips on the modeled transportation network. Socio-Economic data were developed for the 2009 base year and for the 2020, 2030 and 2040 forecast years.

It is important to remember that socio-economic forecasting is essentially a matter of judgment. Judgment is required in selecting the type of forecast to be implemented; in determining the procedures for making the forecast; and, the process used in reviewing the effects of the factors that induce changes in population and employment. The establishment of a large new industry or the loss of a similar size industry can lead to considerable impact on an area's development.

Therefore, although socio-economic projections are a useful and required tool in the planning of an area's future growth and development, it is important to note that the projections are not infallible and should be modified as time progresses to better reflect development impacts occurring in the SMATS planning area.

The TAZ's were created from the 2000 census blocks and constrained by the network and Minor Civil Division (MCD) boundaries. Values for population and occupied households were aggregated from the 2000 census blocks to arrive at TAZ totals for 2000. MPO staff used this and MCD projections as well as input from local officials to develop the TAZ values for the base year of 2009 and forecast years of, 2020, 2030 and 2040.

Employment data was obtained from the combination of the Michigan Employment Security Commission (MESC), and the propriety databases

available from *Claritas* (2008 Business Point Data) and *Hoovers* (business address file). The resulting database was reviewed locally. The employment data for 2009, 2020, 2030 and 2040 were developed using growth rates based on the REMI (Regional Econometric, Inc.) projections as well as local knowledge of expected development.

SMATS staff and committees reviewed the estimates and projections and made adjustments given their local knowledge and greater understanding of the unique local circumstances in each TAZ.

Trip Generation

The trip generation process calculates the number of person-trips produced from or attracted to a zone, based on the socio-economic characteristics of that zone. The urban transportation forecasting models do not consider travel characteristics such as direction, length, or time of occurrence as part of trip generation. The relationship between person-trip making and land activity are expressed in equations for use in the modeling process. The formulas were derived from MI Travel Counts Michigan travel survey data and other research throughout the United States. Productions were generated with a cross-classification look-up process based on household demographics. Attractions were generated with a regression approach based on employment and household demographics. In order to develop a trip table, productions (P's) and attractions (A's) must be balanced also referred to as normalization.

The GLBR travel demand model also has a simple truck model that estimates commercial and heavy truck traffic based on production and attraction relationships developed from the Quick Response Freight Manual I (QRFM I). The QRFM I uses the employment data from the TAZs in its calculations.

Trips that begin or end beyond the study area boundary are called "cordon trips." These trips are made up of two components: external to internal (EI) or internal to external (IE) trips and through-trips (EE). EI trips are those trips which start outside the study area and end in the study area. IE trips start inside the study area and end outside the study area. EE trips are those trips that pass through the study area without stopping; this matrix is referred to as the through-trip table.

Trip Distribution

Trip distribution involves the use of mathematical formula which determines how many of the trips produced in a zone will be attracted to each of the other zones. It connects the ends of trips produced in one zone to the ends of trips attracted to other zones. The equations are based on travel time between zones

and the relative level of activity in each zone. Trip purpose is an important factor in development of these relationships. The trip relationship formula developed in this process is based on principals and algorithms commonly referred to as the Gravity Model.

The process which connects productions to attractions is called trip distribution. The most widely used and documented technique is the "gravity model" which was originally derived from Newton's Law of Gravity. Newton's Law states that the attractive force between any two bodies is directly related to the masses of the bodies and inversely related to the distance between them. Analogously, in the trip distribution model, the number of trips between two areas is directly related to the level of activity in an area (represented by its trip generation) and inversely related to the distance between the areas (represented as a function of travel time).

Research has determined that the pure gravity model equation does not adequately predict the distribution of trips between zones. In most models the value of time for each purpose is modified by an exponentially determined "travel time factor" or "F factor" --also known as a "Friction Factor." "F factors" represent the average area-wide effect that various levels of travel time have on travel between zones. The "F factors" used were developed using an exponential function described in the Travel Estimation Techniques for Urban Planning, NCHRP 365. The matrix is generated in TransCAD during the gravity model process.

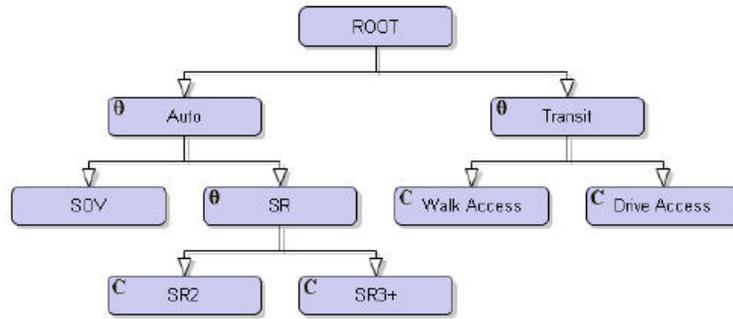
The primary inputs to the gravity model are the normalized productions (P's) and attractions (A's) by trip purpose developed in the trip generation phase. The second data input is a measure of the temporal separation between zones. This measure is an estimate of travel time over the transportation network. Zone-to-zone travel times are referred to as "skims."

In order to more closely approximate actual times between zones and also to account for the travel time for intra-zonal trips, the skims were updated to include terminal and intra-zonal times. Terminal times account for the non-driving portion of each end of the trip and were generated from a look-up table based on area type. They represent that portion of the total travel time used for parking and walking to the actual destination. Intra-zonal travel time is the time of trips that begin and end within the same zone. Intra-zonal travel times were calculated utilizing a nearest neighbor routine.

The Gravity Model utilizes the by-purpose P's & A's, the by-purpose "F factors", and the travel times, including terminal and intra-zonal.

Mode Choice

The number of person trips and their trip starting and ending point have been determined in the trip generation and trip distribution steps. The mode choice step determines how each person trip will travel. The GLBR travel demand model uses a nested logit model to predict mode choice.



With this logit structure the basic modes are:

1. Single Occupancy Vehicle (SOV)
2. Shared Ride 2 people in vehicle (SR2)
3. Shared Ride 3 or more people in vehicle (SR3+)
4. Walk to transit stop
5. Drive to transit stop

Mode choice model utility equations are used to predict the mode used for a trip. Utility equations vary by trip type and take into consideration things like in-vehicle time, out-of-vehicle time, length and cost. The proximity to transit routes or park and ride locations limits the TAZs that can utilize transit options. The output to this step is a vehicle trip matrix and transit trip matrix. The external trips and the truck trips are added to the vehicle trip matrix.

Assignment

The GBLR model has 4 time periods that were developed to match the peak periods observed in traffic counts.

The following period were used:

AM Peak (7a - 9a)

Mid Day (9a - 3p)

PM Peak (3p - 6p)

Night Time (6p - 7a)

A fixed time of day factor method was utilized. The factors were developed from the MI Travel Counts Michigan travel survey data and vary by trip type. Default factors from the Quick Response Freight Manual I (QRFM I) were used for truck trips.

The traffic assignment process takes the trips produced in a zone (trip generation) and distributed to other zones (trip distribution) and loads them onto the network via the centroid connectors. A program examines all of the possible paths from each zone to all other zones and calculates all reasonable time paths from each zone (centroid) to all other zones. Trips are assigned to paths that are the shortest path between each combination of zones. As the volumes assigned to links approach capacity, travel times on all paths are recalculated to reflect the congestion and the remaining trips are assigned to the next shortest path. This process continues through several iterations until no trip can reduce its travel time by taking the next shortest path. This is a user equilibrium assignment method and reflects the alternative routes that motorists use as the shortest path becomes congested. The assignment produces an assigned volume for each link.

The transit assignment is a daily assignment and uses the transit network route system to assign the shortest path for trips.

Model Calibration/Validation

The outputs of each of the four main steps, Trip Generation, Trip distribution, Mode Choice and Assignment, are checked for reasonableness against national standards. Modifications can be made at each step before moving on to the next.

The final model calibration/validation verifies that the assigned volumes simulate actual traffic counts on the street system. When significant differences occur, additional analysis is conducted to determine the reason. At this time additional modifications may be made to the network speeds and configurations (hence paths), trip generation (special generators), trip distribution (F factors), socio-economic data, or traffic counts.

The purpose of this model calibration phase is to verify that the base year assigned volumes from the traffic assignment model simulate actual base year traffic counts. When this step is completed, the systems model is considered statistically acceptable. This means that future socio-economic data or future network capacity changes can be substituted for base (existing) data. The trip generation, trip distribution, mode choice and traffic assignment steps can be repeated, and future trips can be estimated for systems analysis. It is assumed that the quantifiable relationships modeled in the base year will remain reasonably stable over time.

Applications of the Calibrated/Validated Model

Forecasted travel is produced by substituting forecasted socio-economic and transportation system data for the base year data. This forecasted data is

provided by the MPO. The same mathematical formulae are used for the base and future year data. The assumption is made that the relationships expressed by the formulae in the base year will remain constant over time (to the target date).

After either base year or future trips are simulated, other types of modeling studies can be conducted.

- Network alternatives to relieve congestion can be tested for the 2040 Metropolitan Transportation Plan. Future traffic can be assigned to the existing network to show what would happen in the future if no improvements were made to the present transportation system. This process is often referred to as "deficiency analysis." From this, improvements can be planned that would alleviate demonstrated capacity problems.
- The impact of planned roadway improvements or network changes can be assessed.
- Links can be analyzed to determine what zones are contributing to the travel on that link. This can be shown as a percentage breakdown of total link volume.
- The network can be tested to simulate conditions with or without a proposed bridge or new road segment. The assigned future volumes on adjacent links would then be compared to determine traffic flow impacts. This, in turn, would assist in assessing whether the bridge should be replaced and/or where it should be relocated.
- Road closure/detour evaluation studies can be conducted to determine the effects of closing a roadway. This type of study is very useful for construction management.
- The impacts of land use changes on the network can also be evaluated (e.g., what are the impacts of a new regional mall being built).

Two issues are critical in using the modeling tools and processes:

- The modeling process is most effective for system level analysis. Although detailed volumes for individual intersection and "links" of a highway are an output of the model, additional analysis and modification of the model output may be required for project level analysis.
- The accuracy of the model is heavily dependent on the accuracy of the

socio-economic data and network data provided by the local participating agencies, and the skill of the users in interpreting the reasonableness of the results.

System Analysis for MTP

Generally three different alternative scenarios are developed for the Long Range Transportation Plan:

1. Existing trips on the existing system. This is the "calibrated," existing network/scenario. This is a prerequisite for the other two scenarios.
2. Future trips on the existing network. Future trips are assigned to the existing network. This alternative displays future capacity and congestion problems if no improvements to the system are made. This is called the "No Build" alternative, and usually includes the existing system, plus any projects which are committed to be built in the future.
3. Future trips on the future system. This scenario is the future Metropolitan Transportation Plan network. It includes capacity projects listed in the MTP.

It is important to remember that the volume to capacity ratio reflects a volume for a specified time period and a capacity for that same period of time. It does not reflect deficiencies that only occur briefly at certain short time periods or because of roadway geometrics, or roadway condition.

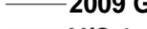
A series of maps was developed to display system deficiencies for the 2009 base year, 2040 with no capacity projects built, and 2040 with the capacity projects identified in the plan. For each scenario, separate maps were generated for each of the time periods considered: A.M. Peak, Mid-Day, P.M. Peak, and Night. Electronic copies of the full set of maps are on file with the MPO. To keep the electronic plan document a reasonable size, only the daily deficiency maps are included at the end of this chapter. These maps are composites that include the deficiencies from all the time periods on a single map for the 2009, 2040 "no build" and 2040 "build" scenarios. Finally, the deficiencies identified in the modeling process are also listed in Table 5-1.

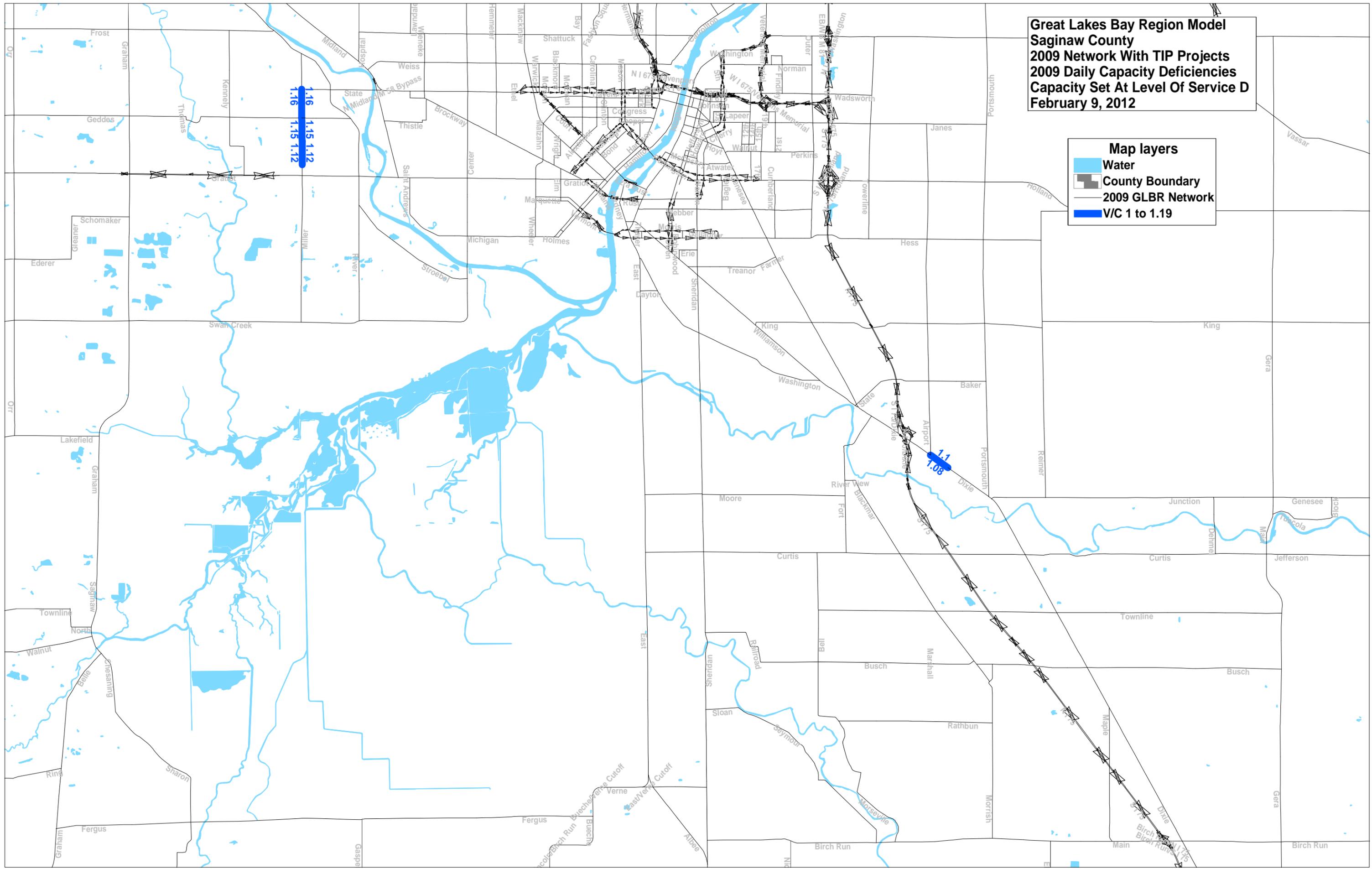
Table 5-1. Great Lakes Bay Region Travel Demand Model
Saginaw County Capacity Deficiencies
February 9, 2012

Road Name	Extent	2009 V/C with TIP Projects	2040 V/C without MTP Projects	2040 V/C with MTP Projects
Am Peak (7a-9a)				
Miller Road	State to Gratiot	1 - 1.17	1.1 - 1.34	Not Deficient
Dixie Highway	Airport to Junction	.81 - 1.14	.82 - 1.19	.82 - 1.19
Main Street	Maple to I-75	.77 - 1.04	.81 - 1.06	.81 - 1.06
Gratiot	Midland to St. Andrews	Not Deficient	.66 - 1.01	.66 - 1.01
Gratiot	Golfview to Wheeler	Not Deficient	.7 - 1.03	.7 - 1.03
Michigan	Shattuck to Weiss	Not Deficient	.83 - 1.07	Not Deficient
McCarty	Lawndale to Mackinaw	Not Deficient	.62 - 1.13	.62 - 1.13
Tittabawassee	Center to Bay	Not Deficient	.45 - 1.12	.45 - 1.12
Mid day (9a-3p)				
Miller Road	State to Gratiot	1.05 - 1.06	.98 - 1.19	.98 - 1.19
PM Peak (3p-6p)				
Miller Road	State to Gratiot	1.04 - 1.19	1.14 - 1.28	Not Deficient
Dixie Highway	Airport to Portsmouth	.87 - 1.02	.9 - 1.07	.9 - 1.07
Michigan	Shattuck to Weiss	Not Deficient	.69 - 1.14	.69 - 1.14
McCarty	Hemmeter to Mackinaw	Not Deficient	.73 - 1.06	.73 - 1.06
Night (6p - 7a)				
None				
Daily				
Miller Road	State to Gratiot	1.12 - 1.16	1.18 - 1.22	Not Deficient
Dixie Highway	Airport to Portsmouth	1.08 - 1.1	1.12 - 1.14	1.12 - 1.14
Main Street	Maple to I-75	Not Deficient	1.12 - 1.13	1.12 - 1.13
Michigan	Shattuck to Weiss	Not Deficient	.79 - 1.12	Not Deficient
McCarty	Hemmeter to Mackinaw	Not Deficient	1 - 1.05	1 - 1.05

**Great Lakes Bay Region Model
Saginaw County
2009 Network With TIP Projects
2009 Daily Capacity Deficiencies
Capacity Set At Level Of Service D
February 9, 2012**

Map layers

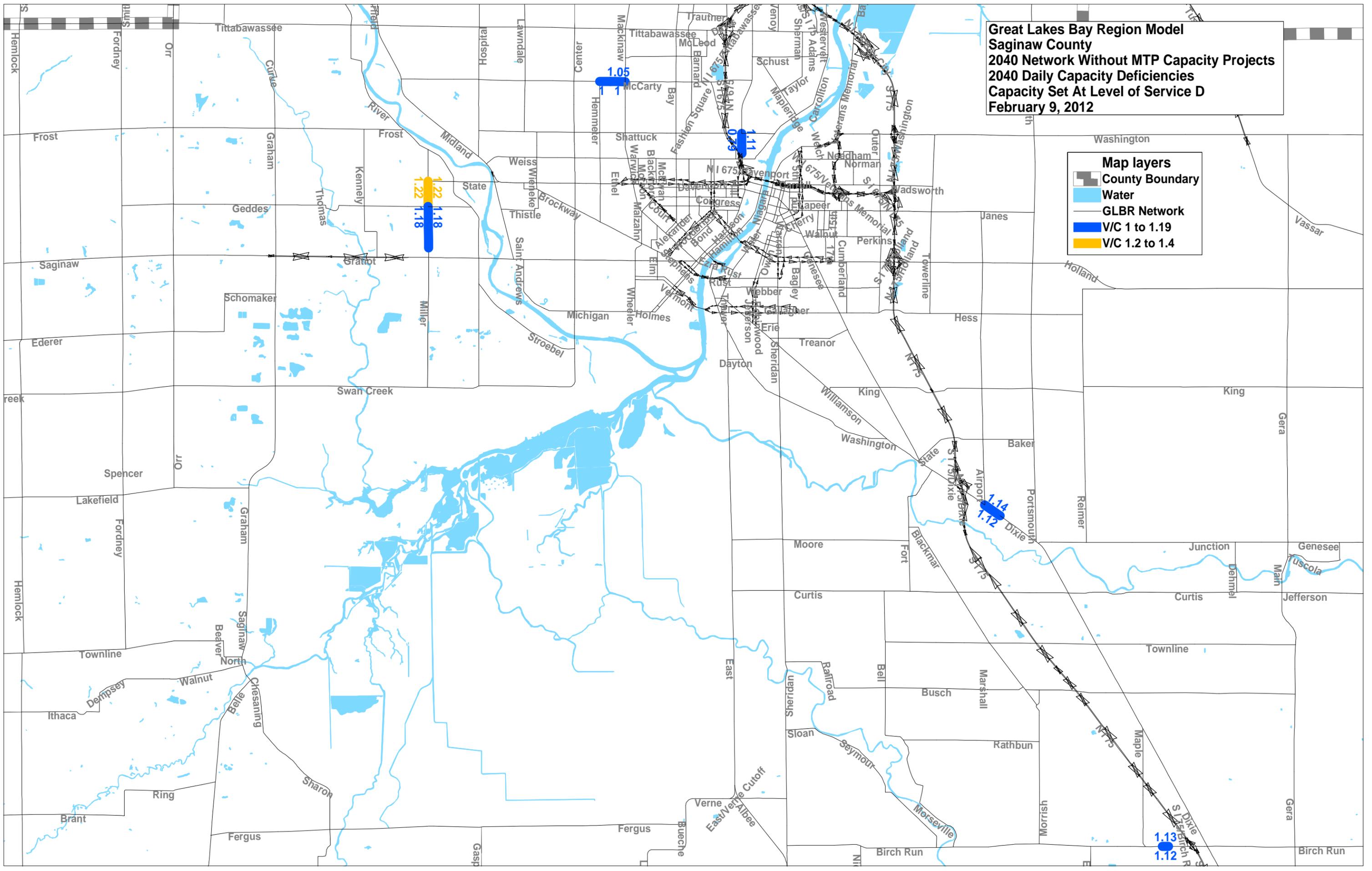
-  Water
-  County Boundary
-  2009 GLBR Network
-  V/C 1 to 1.19



**Great Lakes Bay Region Model
Saginaw County
2040 Network Without MTP Capacity Projects
2040 Daily Capacity Deficiencies
Capacity Set At Level of Service D
February 9, 2012**

Map layers

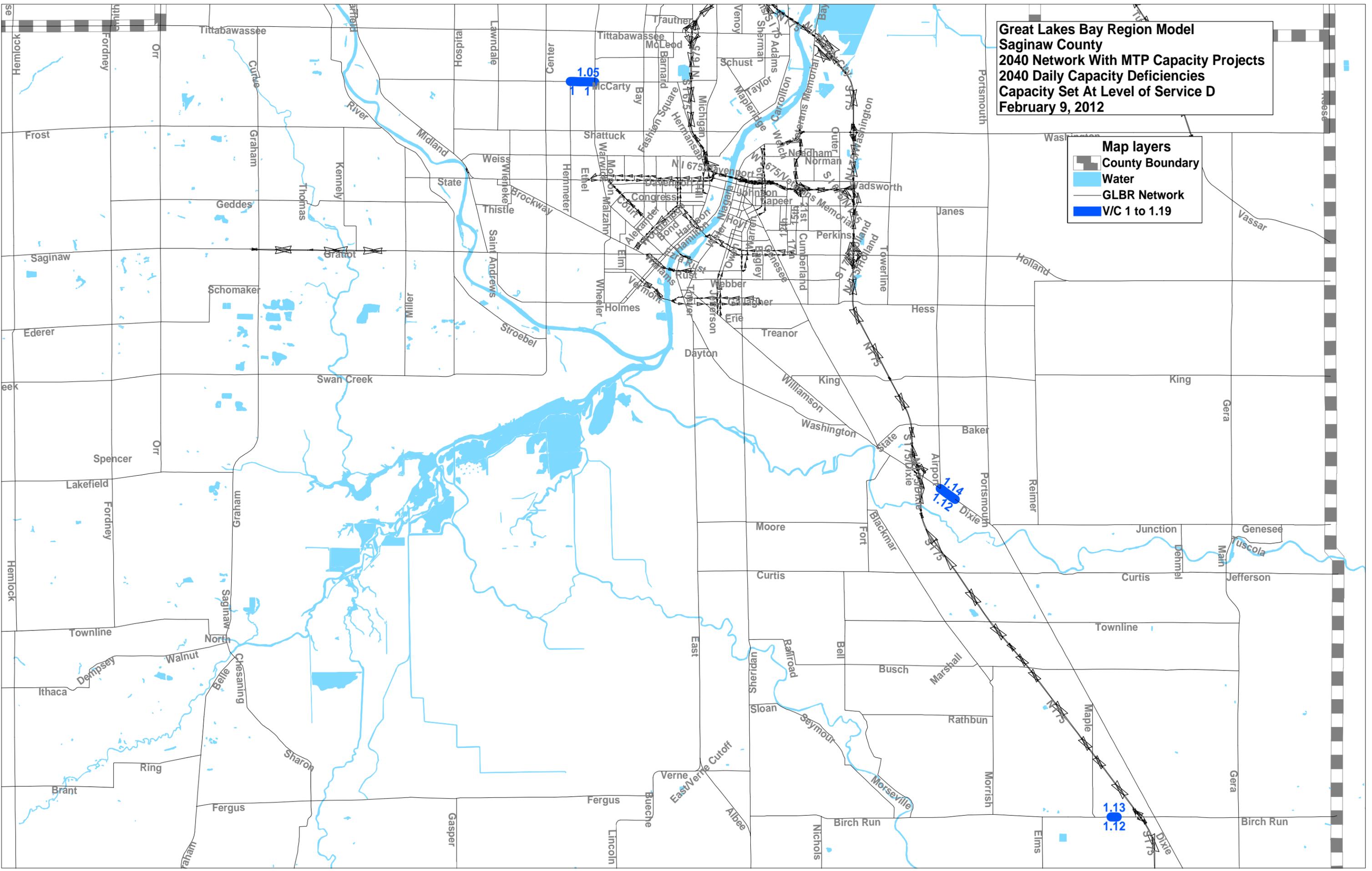
-  County Boundary
-  Water
-  GLBR Network
-  V/C 1 to 1.19
-  V/C 1.2 to 1.4



**Great Lakes Bay Region Model
Saginaw County
2040 Network With MTP Capacity Projects
2040 Daily Capacity Deficiencies
Capacity Set At Level of Service D
February 9, 2012**

Map layers

-  County Boundary
-  Water
-  GLBR Network
-  V/C 1 to 1.19



1.05
1.1

1.14
1.12

1.13
1.12

Chapter 6

Transportation Projects

This chapter lists the major transportation projects that have been selected by SMATS for the period covered by the Metropolitan Transportation Plan: 2012 – 2040.

To identify general timeframes for implementation, the listed projects have been placed in three broad tiers: 2012 – 2020, 2021 – 2030, and 2031 – 2040. This method has been used to give a general sense of project priorities and timing. However, this listing is not meant to lock projects into a specific year. Instead, the timeframes are flexible and are meant to allow the movement of projects between tiers as needs and opportunities occur. The exception to this is projects that are already programmed in the current Transportation Improvement Program (TIP) for a specific year within 2012 through 2014.

The costs of the projects have been estimated to reflect year of expenditure dollars. The implementing agencies used an inflation factor of 3.3% per year to estimate future costs. These costs have also been analyzed in terms of projected revenue sources and funding. This analysis is fully explained in the following chapter (Chapter 7) and is performed to ensure that the project list is realistic relative to funding that is expected to be available.

For discussion purposes, the projects have been divided into three categories based on the lead agencies that are responsible for carrying out each set of projects;

1. **Local Road Projects** which will be built by the Saginaw County Road Commission and the City of Saginaw within their respective jurisdictions;
2. **Trunkline Projects** on state highways that are under the jurisdiction of the Michigan Department of Transportation (MDOT); and
3. **Public Transit Projects** which will be developed by the Saginaw Transit Authority Regional Services (STARS).

Previous SMATS long range plans only listed capacity improvement projects. Preservation and maintenance projects were not included. The 2040 Plan departs from this by also identifying preservation projects that are proposed within the timeframe covered by the plan. This broader, more inclusive list of projects is intended to give a more accurate overall picture of the total transportation system improvements that are needed in the area.

Therefore, the road projects identified in the plan are divided into two categories. *Capacity improvement* projects generally involve the addition of travel lanes or turning lanes. The construction of new roads would also be considered capacity improvements, but they are not likely to occur in the SMATS planning area. *Repair and rebuild* projects focus on preserving the existing road system. The repair and rebuild project listings include the projects that are

programmed in the current Transportation Improvement Program (TIP) through 2014. All of the proposed projects are listed in Table 6-1.

Local Road Projects

The local capacity improvement projects identified in this listing are all intended to address current or anticipated system deficiencies, based on the results of the Travel Demand Model and evaluation by the participating road agencies. Most of the local capacity improvement projects identified in the plan involve the addition of left turn lanes. A few projects call for road widening to four lanes.

The locations of the local capacity improvement projects are shown in Figure 6-1 at the end of this chapter.

It is also important to note that the first priority of the SMATS planning process is *preservation* of the current transportation network. This means that, while the capacity projects identified here are valid and important, they are generally judged to be a lower priority than projects aimed at preserving the existing system. Accordingly, numerous projects that involve reconstruction and resurfacing of roads under the jurisdiction of the City of Saginaw and the Saginaw County Road Commission are listed in Table 6-1.

State Trunkline Projects

State highway projects identified in the plan have also been further classified as *capacity improvement* and *repair and rebuild* projects. The major MDOT capacity projects proposed focus on improvements to I-75. One major project involves the section of I-75 from just north of I-675 to the north county line. This includes reconstruction and widening into the median.

The other major capacity improvement project envisioned for I-75 involves the section from Dixie Highway to Hess. Plans call for major widening. This is also the single largest road project identified in the MTP, with an estimated total cost of over \$41 million. State capacity projects are also shown in Figure 5-1.

The state repair and rebuild projects involve work on I-75, M-13, and M-57, and include several bridge replacements on these routes.

Public Transit Projects

Table 6-1 also lists the major capital projects that will be undertaken by STARS during the duration of this Metropolitan Transportation Plan. At this time, only the projects that are currently listed in the 2011 - 2014 TIP are included. These generally include proposed funding for vehicle replacements, equipment for maintenance and repair, and transit facility improvements.

STARS has also recently completed a Transit Master Plan that calls for a phased approach to expanding transit services to the entire county. The proposed service expansion will entail capital costs for additional vehicles and passenger service facilities. However, the timetable and, more importantly, the funding for implementation of the plan are uncertain at this time. Therefore, the Transit Master Plan's proposals are discussed in more detail in the chapter on Illustrative Projects.

Non-Motorized Projects

Non-motorized planning efforts and projects were described in the review of the existing system in Chapter 2. Several specific projects that are planned, funded, and ready to move forward are also listed in this chapter.

Thomas Township. In cooperation with Thomas Township, MDOT will construct a 2.2 mile non-motorized path from the Saginaw Valley Rail Trail to Shields Drive. The pathway will create a direct connection to schools, libraries, and shopping areas while linking the north and south portions of the township by providing a crossing at M-46.

Saginaw and Kochville Townships. In cooperation with Saginaw Township and Kochville Township, MDOT will construct a 2.5 mile non-motorized path along portions of Consuler Energy right-of-way from Elmer Lange Park to an existing non-motorized pathway at McCarty Road.

Saginaw Valley Rail Trail. Saginaw County Parks and Recreation will develop a 1.4 mile connection along Stroebel Road between the existing Saginaw Valley Rail Trail (SVRT) and the pathway along Center Road. This project will provide the final connection between the SVRT and the pathway system in Saginaw Charter Township.

SMATS 2040 Metropolitan Transportation Plan Project List

Local Road Capacity Improvement Projects, 2012 – 2040

Route	Limits	Description	Estimated Cost*	Year	Agency
Brockway Rd	Passolt to Center	Add center left-turn lane	\$750,000	2012 – 2020	SCRC
Hemmeter Rd	Brockway to State	Add center left-turn lane	\$700,000	2012 – 2020	SCRC
Wieneke Rd	Weiss to Shattuck	Add center left-turn lane	\$700,000	2012 – 2020	SCRC
McCarty Rd	Bay Rd to Fashion Sq. Blvd	Add center left-turn lane	\$600,000	2012 – 2020	SCRC
Pierce Rd	Bay to Davis	Add center left-turn lane	\$1,500,000	2012 – 2020	SCRC
Freeland Rd	Midland to Webster	Add center left-turn lane	\$640,000	2012 – 2020	SCRC
Mackinaw Rd	Weiss to Shattuck	Add center left-turn lane	\$700,000	2012 – 2020	SCRC
Tittabawassee Rd	At Bay Road Intersection	Add right turn lane in East Quad	\$500,000	2012 – 2020	SCRC
Tittabawassee Rd	At River Rd Intersection	Add turn lane(s)	\$300,000	2012 – 2020	SCRC
Freeland Rd	At River Rd Intersection	Add turn lanes(s)	\$300,000	2012 – 2020	SCRC
Mackinaw Rd	McCarty to 0.25 mile N of Tittabawassee	Add center left-turn lane & intersection safety improvements	\$1,600,000	2021 – 2030	SCRC
Miller Rd	Gratiot to State	Add center left-turn lane	\$1,200,000	2021 – 2030	SCRC
River Rd	Gratiot to State	Add center left-turn lane	\$1,500,000	2021 – 2030	SCRC
Michigan Ave	Weiss to Shattuck	Widen to 4 lanes	\$1,000,000	2021 – 2030	SCRC

* Cost estimates reflect year of expenditure dollars

Local Road Capacity Improvement Projects, 2012 – 2040

Route	Limits	Description	Estimated Cost*	Year	Agency
Hemmeter Rd	State to Shattuck	Widen to 4 lanes	\$1,500,000	2021 – 2030	SCRC
Shattuck Rd	Bay Rd to Fashion Square Blvd	Widen to 4 lanes	\$500,000	2031 – 2040	SCRC
Shattuck Rd	Hospital Rd to Wieneke	Add center left-turn lane	\$700,000	2031 – 2040	SCRC
Mackinaw Rd	Shattuck to McCarty	Add center left-turn lane	\$800,000	2031 – 2040	SCRC
Michigan Ave	Shattuck to Tittabawassee	Add center left-turn lane	\$3,000,000	2031 – 2040	SCRC
Center Rd	Michigan to Gratiot	Widen to 4 lanes	\$1,000,000	2031 – 2040	SCRC

* Cost estimates reflect year of expenditure dollars

Local Road Repair & Rebuild Projects, 2012 – 2040

Route	Limits	Description	Estimated Cost*	Year	Agency
Ezra Rust	M-13 to Court St Bridge	Mill & pave 4 lanes with isolated pavement repairs	\$700,000	2012	Saginaw City
Fordney Street	M-46 to Ezra Rust	Reconstruct 3 lanes with concrete pavement	\$800,000	2012	Saginaw City
Bishop Road	At Miller Drain	Bridge Replacement	1,553,000	2012	SCRC
Bishop Road	Over Miller Drain, N of Fergus Rd	Drain realignment	250,000	2012	SCRC
Shattuck Road	RR tracks west of M-84 to Hermansau	Mill & pave	246,500	2012	SCRC
Tittabawassee Road	Mackinaw to Bay	Resurface	\$850,000	2012	SCRC
South Merrill Road	Over South Branch Bad River	Bridge Replacement	\$920,000	2012	SCRC
Frost Road	Over Swan Creek	Bridge Replacement	\$1,768,000	2012	SCRC
Sheridan Road	Williamson to City Limits	Mill & pave	\$75,000	2012	SCRC
Wieneke Road	Brockway to M-58	Mill & pave	\$50,000	2012	SCRC
Genesee Ave	Harold to Hess	Mill & pave 5 lanes with ADA ramp upgrades	\$600,000	2013	Saginaw City
Weiss St	At Hermansau	Add center left turn lane and traffic signal	\$200,000	2013	Saginaw City
Treanor St	Williamson to Dixie Hwy	Resurface (crush & shape)	\$800,000	2013	SCRC & Saginaw City
Hamilton Street	Lyon to Court St	Rehabilitation of two-lane roadway & on-street parking	\$550,000	2013	Saginaw City

* Cost estimates reflect year of expenditure dollars

* Cost estimates reflect year of expenditure dollars

Local Road Repair & Rebuild Projects, 2012 – 2040

Route	Limits	Description	Estimated Cost*	Year	Agency
Brockway Rd	City Limits to Center	Resurface (crush & shape)	\$810,000	2013	SCRC
Hemmeter	Brockway to State	Resurface (crush & shape)	\$510,000	2014	SCRC
Niagara St	RR tracks to Davenport	Reconstruct 2 & 3 lanes	\$1,400,000	2014	Saginaw City
Mackinaw St	State St to Weiss St	Reconstruct 0.1 mile; 0.4 mile of pavement repairs	\$300,000	2014	Saginaw City
W Sharon St/Brady St	E. Village Limits to W Village Limits	Resurface	\$500,000	2014	Oakley Village
Outer Drive	Perkins to Washington	Reconstruct w/ turn lanes at intersections	\$3,000,000	2015 – 2040	SCRC
River Road	State to Frost	Reconstruct with horizontal curve improvement	\$1,500,000	2015 – 2040	SCRC
River Road	Frost to Tittabawassee	Reconstruct with horizontal curve improvement	\$2,000,000	2015 – 2040	SCRC
Tittabawassee Rd	Michigan to Bay	Concrete repair & replacement	\$1,500,000	2015 – 2040	SCRC
West Michigan Rd/St. Andrews	Gratiot to City Limits	Reconstruction	\$2,000,000	2015 – 2040	SCRC
Weiss	Midland to Wieneke	Reconstruction	\$1,000,000	2015 – 2040	SCRC
Weiss	Wieneke to Center	Reconstruction	\$1,000,000	2015 – 2040	SCRC
Weiss	Center to Mackinaw	Reconstruction	\$1,000,000	2015 – 2040	SCRC
Weiss	Mackinaw to Bay	Reconstruction	\$1,000,000	2015 – 2040	SCRC
Shattuck	Fashion Square to Hermansau	Reconstruct with center left turn lane	\$1,000,000	2015 – 2040	SCRC

Local Road Repair & Rebuild Projects, 2012 – 2040

Route	Limits	Description	Estimated Cost*	Year	Agency
Shattuck	Wieneke to Center	Reconstruction	\$1,000,000	2015 – 2040	SCRC
Shattuck	Center to Mackinaw	Reconstruction	\$1,000,000	2015 – 2040	SCRC
Freeland	Webster to Garfield	Reconstruction	\$800,000	2015 – 2040	SCRC
Garfield	Freeland Rd to MBS Airport	Reconstruction	\$1,000,000	2015 – 2040	SCRC
Hemmeter	Shattuck to McCarty	Reconstruction	\$1,000,000	2015 – 2040	SCRC
Michigan	Shattuck to McCarty	Reconstruction	\$1,000,000	2015 – 2040	SCRC
Michigan	McCarty to Tittabawassee	Reconstruction	\$1,000,000	2015 – 2040	SCRC
Mapleridge	Schust to Carrollton	Reconstruction with turn lanes at intersections	\$1,500,000	2015 – 2040	SCRC
Mackinaw	0.25 mile north of Tittabawassee to Kochville	Reconstruction	\$750,000	2015 – 2040	SCRC
Freeland Road	M-47 to RR tracks	Reconstruction	\$700,000	2015 – 2040	SCRC
Kochville Road	N. Michigan to Davis	Reconstruction to all-season standards	\$400,000	2015 – 2040	SCRC

* Cost estimates reflect year of expenditure dollars

State Trunkline Capacity Improvement Projects, 2012 – 2040

Route	Limits	Description	Estimated Cost*	Year	Agency
I-75	Dixie Highway to Hess	Widening – major capacity increase	\$41,420,000	2012 – 2020	MDOT
I-75	From north junction of I-675 to Saginaw/Bay County Line	Reconstruction & widening into the median one lane in each direction; construct median barrier wall; drainage extensions	\$5,000,000	2012 – 2020	MDOT

* Cost estimates reflect year of expenditure dollars

State Trunkline Repair & Rebuild Projects, 2012 – 2040

Route	Limits	Description	Estimated Cost*	Year	Agency
I-75	Janes Rd to I-675 bridges	Reconstruction	\$31,800,000	2012	MDOT
I-75	Janes Rd over I-75	Bridge replacement	\$3,249,000	2012	MDOT
M-13	Over Flint River	Bridge replacement	\$6,618,000	2014	MDOT
M-13	Over Koepke Drain	Deep overlay	\$564,000	2014	MDOT
M-13	Over Birch Run Outlet Drain	Bridge replacement	\$2,971,000	2014	MDOT
M-57	Over Deer Creek	Culvert replacement	\$1,391,000	2014	MDOT
I-75	Over Kochville Drain	Deck replacements (both NB & SB)	\$1,500,000	2016	MDOT

* Cost estimates reflect year of expenditure dollars

Public Transit Capital Projects, 2012 – 2040

Project	Description	Estimated Cost*	Year	Agency
Vehicles	Vehicle additions & replacements	\$6,074,000	2012	STARS
Facilities	Transit facility improvements	\$1,180,000	2012	STARS
Equipment upgrades	Transit maintenance equipment & parts	\$780,000	2012	STARS
Vehicles	Vehicle replacements	\$62,000	2012	Saginaw County Commission on Aging
Vehicles	Vehicle additions & replacements	\$5,250,000	2013	STARS
Facilities	Transit facility improvements	\$1,030,000	2013	STARS
Equipment upgrades	Transit maintenance equipment & parts	\$420,000	2013	STARS
Vehicles	Vehicle replacements	\$72,000	2013	Saginaw County Commission on Aging

* Cost estimates reflect year of expenditure dollars

Non-Motorized Projects, 2012 – 2040

Project	Description	Estimated Cost*	Year	Agency
Thomas Twp Pathway	2.2 miles from from SVRT to Shields Drive	\$854,060	2012 – 2014	MDOT
Kochville Twp & Saginaw Twp Pathway	2.5 miles along Consumers Energy ROW from Elmer Lange Park to non-motorized path at McCarty Rd	\$802,099	2012 – 2014	MDOT
Saginaw Valley Rail Trail Stroebel Road Connection	1.4 mile connection along Stroebel Rd between existing SVRT and pathway long Center Rd	\$387,000	2012 – 2014	Saginaw County Parks and Recreation

* Cost estimates reflect year of expenditure dollars

Estimated Costs of All Projects

Local Capacity Improvement	
2012 – 2020	\$ 6,690,000
2021 – 2030	\$ 6,800,000
2031 – 2040	\$ 6,000,000
Subtotal	\$ 19,490,000
Local Repair & Rebuild	
2012 – 2014	\$ 12,882,500
2015 – 2040	\$ 25,150,000
Subtotal	\$ 38,032,500
Trunkline Capacity Improvement	
2012 – 2020	\$ 46,420,000
Trunkline Repair & Rebuild	
2012 – 2020	\$ 48,093,000
Public Transit Capital Projects	
2012 – 2014	\$ 14,868,000
Non-Motorized Projects	
2012 – 2014	\$ 2,043,159

TOTAL, ALL 2012 – 2040 PROJECTS: \$ 168,946,659

Chapter 7

Financial Analysis and Constraint

This chapter provides a financial analysis of the proposed transportation projects relative to the existing system and demonstrates financial constraint. The Saginaw Metropolitan Area Transportation Study (SMATS) 2040 Metropolitan Transportation Plan (MTP) identifies the significant transportation system improvements that are proposed for development over the next 28 years. The Federal regulations state that the MTP must be financially constrained and that it must include a financial plan that shows how projects can be implemented. In essence, this requires identifying the projects that can be implemented using current revenue and those that will require proposed revenue sources, while also demonstrating that the existing system can be adequately operated and maintained. This process is intended to avoid unrealistic expectations for a “wish list” of projects that cannot be implemented. The resulting plan is “financially constrained” in the sense that it includes only those projects for which there will be sufficient revenue to complete.

MPO Revenue Estimates for Road Projects

Table 7-1 shows the Federal Surface Transportation Program (STP) funds that are expected to be available for the SMATS urbanized area over the life of this plan. These funds are based on a FY 2011 base year and grown by the agreed upon growth rates of 0% for FY '12 and FY'13, 2% for FY '14-'17 and 2.62% for FY 2018 and beyond. This method was developed by the Financial Working Group of the Michigan Transportation Planning Association (MTPA) and approved by that organization. As shown in the table, the code for these funds is “STUL,” which is the designation for STP funds for urbanized areas under 200,000 in population.

MDOT 2040 MPO Long Range Revenue Forecast Methodology

The methodology developed by MDOT (March 28, 2012) to estimate the MDOT project revenues that are expected to be available to the SMATS area as well as the other Michigan MPO's is explained below. The resulting revenues are shown in Table 7-2.

Highway Revenue Forecast Growth Rate

MDOT Statewide Transportation Planning Division analyzed historical state highway revenue and historical federal obligations. State revenue and federal obligation growth rates were calculated. The revenue growth used in the long range revenue forecast for the near term has virtually flat rates to reflect the current economic conditions. For some years the state forecast assumes additional revenue through a variety of mechanisms to match federal aid. In order to take a conservative approach with the federal and state revenue forecasts beyond the near term, 90% of the historic growth rates were used. The resulting rates beyond the near term are: federal 2.6% annual growth, and state 2.3% annual growth.

Total estimated federal revenue: \$31.4 B

Total estimated state revenue: \$27.9 B

Revenue available for Capital outlay

Debt service, non-capital uses and routine maintenance are deducted from the estimated federal and state revenue. The resulting FY 2012-2040 total estimated revenue available for highway capital outlay is \$37.5 billion (in future year dollars).

Methodology for MPO Allocation of Capacity Improvement/New Road Dollars

The trunkline capacity improvement and new road (CI/NR) projects in the Long Range Revenue Forecast are in the 2012-2016 Five-Year Transportation Program, have earmarks or are on corridors of National Significance. They were reviewed and vetted by MDOT executive management. The revenue remaining after accounting for the CI/NR projects is available for the preservation program.

Methodology for MPO Allocation of Highway Program Preservation Dollars

A ten-year history (2002-2011) of highway capital program investments (excluding CI/NR) was compiled. Each MPO's share was calculated by dividing the MPO investment by the total statewide investment over the ten year time frame. Next the FY 2012-2040 total estimated revenue for preservation was multiplied by each MPO share of historic investments. The result is FY 2012-2040 total estimated revenue for preservation for each MPO.

Table 7-1. SMATS 2040 Plan Revenue Estimates for STUL Federal Funds.

2011 STUL Base Amount	\$2,643,989
2012 – 2040 Total STUL Funds Available	\$107,468,188

Table 7-2. MDOT Long Range Preservation Revenue Forecast

2012 – 2040 Total Funds Available	\$860,605,932
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Michigan Transportation Fund (Act 51) Revenues

The next step in the financial analysis is to examine the revenues that are available to the local road agencies through the Michigan Transportation Fund (MTF) under Act 51. Forecasts for Act 51 were developed with the same assumptions that were used for the

federal revenues, using 2011 as the base year: no growth in 2012 and 2013; 2% annual increase from 2014 to 2017; and a 2.62% annual increase for 2018 to 2040. These projected revenues are shown in Table 7-3.

The MTF is a major source of funding for the local road agencies’ operations and maintenance costs. It was estimated that 70% of the available MTF funding is used for routine maintenance and operations, including snow and ice removal, administration, mowing, road patching, and equipment. The remaining 30% was assumed to be available for capital improvement projects, including match for federal funds, preliminary engineering, and construction engineering.

Table 7-3. Local Agencies MTF (Act 51) Revenue Estimates, SMATS Urbanized Area

Year	SCRC Urban Area	Saginaw City Major Streets	Zilwaukee City Major Streets	Total Available for Federal Aid Roads	Available for Operations & Maintenance	Available for Capital Improvements
2011 Base Year	\$1,065,591	\$3,491,128	\$92,836	\$4,649,555	\$3,254,689	\$1,394,867
Totals, 2012 – 2040	\$43,144,476	\$127,508,096	\$3,592,892	\$174,245,464	\$121,971,827	\$52,273,643

Financial Constraint for Highway Projects

Financial constraint for highway projects can now be evaluated. First, however, several items should be explained or clarified:

1. The list of local “repair & rebuild” projects in Chapter 6 includes all of the projects that are in the current SMATS TIP for 2012 – 2014. However, several of the projects will not use STUL funding. They are programmed using other funds such as bridge replacement funds (BRT) and the STP funds for non-urban areas.

These projects are listed below.

- Bishop Rd. bridge replacement \$1,553,000
- Bishop Rd. drain realignment \$ 250,000
- South Merrill Rd. bridge replacement \$ 920,000
- Frost Rd. bridge replacement \$1,768,000
- Oakley Village, W. Sharon St. resurface \$ 500,000
- Total \$4,991,000**

For the financial constraint evaluation, the total cost of the local repair and rebuild projects has been reduced by the above amount to **\$33,041,500**.

2. Two MDOT trunkline capacity improvement projects are listed in Chapter 6: I-75 reconstruction from I-675 to the north county line, and I-75 widening from Dixie Highway to Hess. However, both of these projects will be built within the existing right-of-way. For example, road widening will be built into the median. Because of this, MDOT is developing these projects according to their “repair and rebuild” template. Therefore, although these projects are classified as “capacity improvement” in the SMATS MTP, they will be built with the system preservation revenues that are available to MDOT.

3. The non-motorized projects identified in Chapter 6 will not utilize STUL funds. The Thomas Township and Kochville/Saginaw Township pathways will be built with transportation enhancement (STE) and local funds. The Stroebel Road extension of the Saginaw Valley Rail Trail will be funded with Michigan Natural Resources Trust Fund (MNRTF) monies. Additional separate pathway projects that may be developed during the period covered by the MTP are also expected to use transportation enhancement funds. Therefore, the costs of these projects are not included in the total cost of local road projects.

Financial constraint for local road projects and state trunklines in the 2040 MTP can now be demonstrated as shown in Table 7-4.

Table 6-4. Highway Financial Constraint Demonstration

Total SMATS STUL Funds, 2012 – 2040	\$107,468,188
MTF (Act 51) Funds Available for Capital Projects, 2012 – 2040	\$52,273,643
Total Revenues Available for SMATS Local Capital Projects, 2012 – 2040	\$159,741,831
SMATS Local Capacity Improvement Projects, 2012 – 2040	\$19,490,000
SMATS Local Repair & Rebuild Projects, 2012 – 2040	\$33,041,500
Total SMATS Local Project Costs, 2012 – 2040	\$52,531,500
Unassigned Balance Available for Local Capital Projects	\$107,210,331
Total Revenues Available for MDOT Preservation Projects, 2012 – 2040	\$860,605,931
Total Costs for MDOT Trunkline Projects in 2040 MTP	\$94,513,000
Unassigned Balance Available for MDOT Preservation Projects	\$766,092,932

It is important to note that the total projected MPO funding for 2040 is only an estimate of future revenues and may not reflect actual federal, state, and local funds available in future years.

Public Transit Revenue Estimates

Table 7-4 shows the transit revenue estimates that were provided by MDOT Office of Passenger Transportation. These are the funds that are expected to be available to STARS for transit operations. It should be noted that the estimates do not include funds for capital improvements, such as the FTA Capital Bus and Capital New Starts discretionary funds. As MDOT noted in providing the estimates, discretionary funding was not used in the calculations. Because discretionary funding is difficult to predict, MDOT felt it should not be included in TIP or Long Range Plan revenue constraint analysis. Therefore, additional discretionary funds are not included in the transit revenue estimates.

For the SMATS 2040 MTP, only the discretionary funds for capital projects that are currently listed in the 2012 - 2014 TIP and included in the MTP Project List in the previous chapter were considered in the financial analysis. These revenues and project costs total \$14,868,000.

The transit revenue forecasts were developed using the following growth factors:

- For federal funds, 0 growth in 2012 and 2013, 3.75% for 2014 -2017, and 4.44% for 2018 - 2040.
- For state operating funds, 0 growth for 2012 and 2013, 0.37% for 2014- 2017 and 0.64% for 2018-2040.
- For state match, the same growth rates were used but only 2/3 of the amount was used starting in FY 2014 because of projected state funding shortfalls.
- Total revenue from federal and state sources for the MTP period is estimated at \$200,714,690.

Public transit is also supported by a local 3 mill levy and farebox revenues collected by STARS. These additional revenues are estimated as follows:

- A local millage generates \$1,500,000 per year.
- Farebox revenues generate \$780,000 per year.
- Some modest growth in local revenue was assumed; revenue forecasts were calculated using the same growth rates as for the state operating funds noted above.
- Local revenue for 2012 - 2040 is estimated at \$71,270,863 (Table 7-4).

Current Transit System Operating Costs

Operating costs for the current transit system are estimated to be about \$7,750,000 per year. These costs were assumed to increase at the same rate as state revenues over the life of the plan. This results in total operating costs of \$242,258,444 (Table 7-4).

Table 7-4. Transit Revenue and Cost Estimates

Federal & State Operating Revenues	Federal	State Match	State Operating	Total
2011 Base Amount	\$2,176,461	\$181,500	\$2,417,594	\$4,775,555
2012 – 2040 Total	\$115,698,978	\$9,443,762	\$75,571,950	\$200,714,690
Local Revenue (Millage & Farebox)				
2011 Base Amount				\$2,280,000
2012 – 2040 Total				\$71,270,863
Discretionary Funds for Capital Projects, 2012 -- 2014				\$14,868,000
Current System Operating Costs				
2011 Base Year				\$7,750,000
2012 – 2040 Total				\$242,258,444

Financial Constraint for Transit

Financial constraint for transit in the 2040 MTP can now be demonstrated as shown in Table 7-5.

Table 7-5. Transit Financial Constraint Demonstration

Total Federal & State Operating Revenues, 2012 – 2040	\$200,714,689
Discretionary Funds for Capital Projects, 2012 – 2014	\$14,868,000
Local Revenues (Millage & Farebox), 2012 – 2040	\$71,270,863
Total Revenues	\$286,863,553
MTP Capital Projects, 2012 – 2014	\$14,868,000
Current Service Operating Costs, 2012 – 2040	\$242,258,444
Total Expenditures	\$257,126,444
Unassigned Balance Available for Transit	\$29,737,109

It should be noted that the new STARS Transit Master Plan (2012) recommends a phased program of transit service expansion that will eventually include countywide services as well as expanded service to major destinations such as medical facilities and educational institutions. The implementation of this plan will have major impacts on various revenue sources, including local millage and farebox revenues. Potential funding sources for this plan include the possibility of a countywide transit millage or a dual millage involving the county and the City of Saginaw. At this time, these funding proposals are speculative and have therefore not been included in the MTP’s financial

analysis. More information on the Transit Master Plan's recommendations is included in the chapter on Illustrative Projects.

Chapter 8

Environmental Mitigation

SMATS has considered potential impacts on environmentally sensitive areas by the listed projects. The intent of the environmental mitigation process is to ensure that the decision makers and implementing agencies take into account any potential environmental impacts associated with the recommended transportation projects, so that consideration can be given to how such impacts can be mitigated.

This was accomplished by comparing the locations of the various transportation projects to available Geographic Information System (GIS) data layers containing relevant information. This information was obtained from the Saginaw Area GIS Authority (SAGA), of which Saginaw County is a member. The transportation projects were evaluated for their potential impacts on flood zones, wetlands, water bodies, and public lands (state, federal, and county). Figure 8-1 shows the 2012 - 2040 capacity improvement projects in relation to environmentally sensitive areas.

All of the listed local projects will be constructed within the existing right-of-way, which will help to minimize any impacts. From this initial review, it was determined that the following local projects have the potential for environmental impacts:

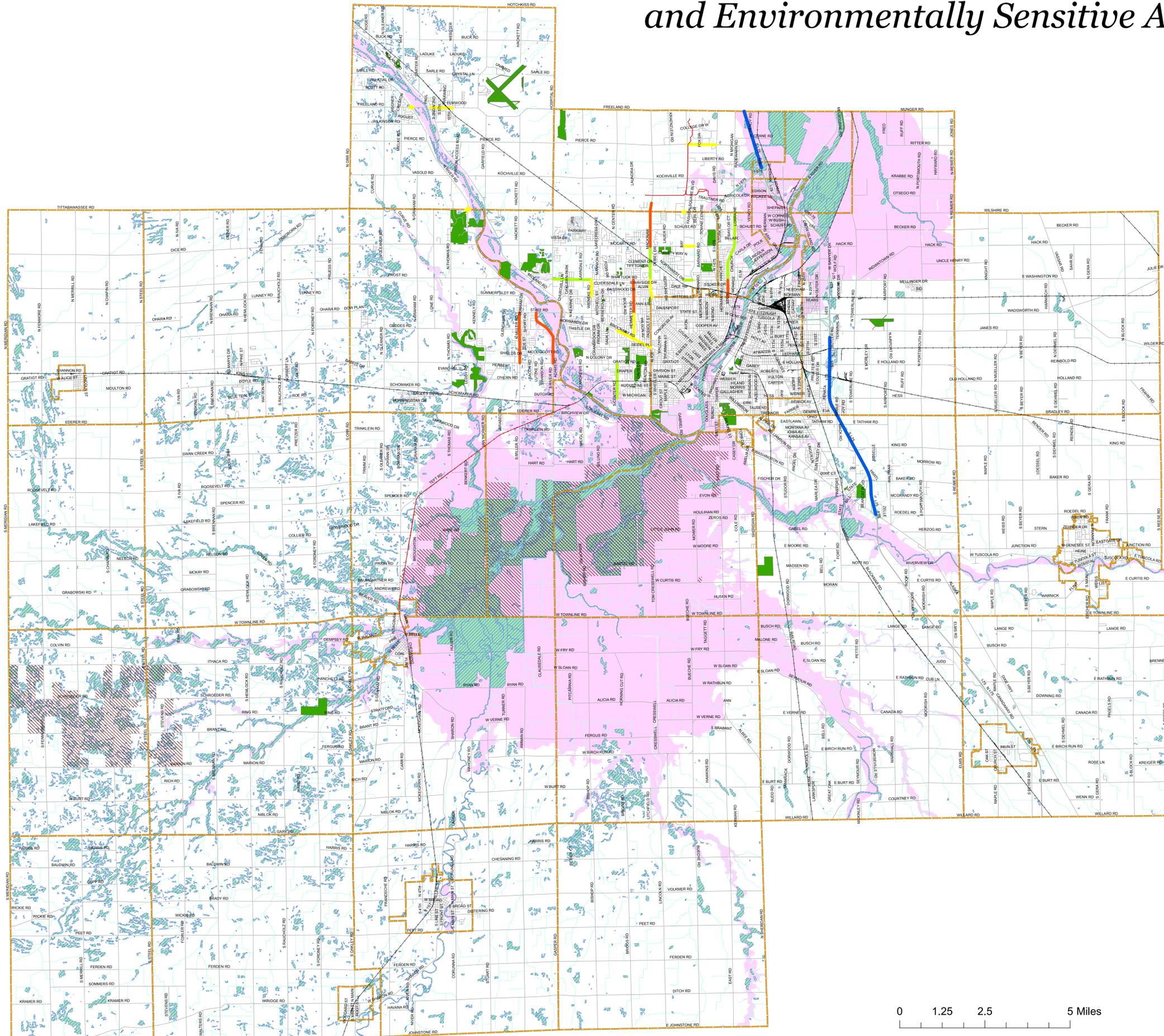
Route	Limits	Description	Year	Type of Area Impacted
Tittabawassee Rd	At River Rd Intersection	Add turn lanes	2012 - 2020	100-Year Flood Plain
Freeland Rd	At River Rd Intersection	Add turn lanes	2012 - 2020	100-Year Flood Plain
Center Rd	Michigan to Gratiot	Widen to 4 lanes	2031 - 2040	100-Year Flood Plain
Michigan Ave	Shattuck to Tittabawassee	Add center left turn lane	2031 - 2049	100-Year Flood Plain

On the state trunkline projects, an Environmental Assessment has been performed for the I-75 corridor improvements that are proposed from I-675 north to the county line, and a Finding of No Significant Impact (FONSI) has been issued. An Environmental Assessment has already been included in the current TIP (2012) for the I-75 corridor work that is proposed from Dixie Highway to Hess.

It is important to note an initial finding that a project has the potential to impact a resource or sensitive area does *not* mean that the project cannot be built. This analysis is simply meant to call attention to potential impacts, and to ensure that environmental resources are adequately considered in all phases of project planning, design, construction, and maintenance.

SMATS and the agencies responsible for project implementation will take appropriate measures to minimize environmental impacts from the projects listed in this plan by following the guidelines established by the American Association of State Highway and Transportation Officials (AASHTO) Center for Environmental Excellence. Internet access to this resource is available at <http://www.environment.transportation.org/>. This site is intended to be a “one stop” source of environmental information for transportation professionals. The implementing agencies are encouraged to consult this resource and to utilize best practices in addressing potential impacts.

SMATS Capacity Projects 2012-2040 and Environmentally Sensitive Areas



LEGEND

- Status**
- Rail Trail
 - SMATS 2012-2020 Projects
 - SMATS 2021-2030 Projects
 - SMATS 2031-2040 Projects
 - MDOT Trunkline Capacity Projects 2012-2040
 - Township-Village-City Boundaries
 - Countywide Streets
 - County Owned Parks & Properties
 - State & Federal Lands
 - National Wetland Inventory
 - 100 Year Flood Plain

0 1.25 2.5 5 Miles



revised 8-22-2012

Chapter 9

Environmental Justice

In April 1997, the U.S. Department of Transportation (DOT) issued the DOT order on environmental justice to Address Environmental Justice in Minority Populations and Low-Income Populations (DOT Order 5610.2). The order generally describes the process for incorporating environmental justice principles into all DOT programs, policies, and activities. Environmental justice is an important part of the planning process and must be considered in all phases of planning. This includes all participation activities, the development of the Metropolitan Transportation Plan, and preparation of Transportation Improvement Programs that are adopted by SMATS. Specifically, SMATS will ensure that environmental justice concerns are adequately considered within the project planning process and as part of its established Participation Plan activities.

Environmental justice includes the following fundamental concepts:

1. To avoid, minimize, or mitigate disproportionately high and adverse human health or environmental effects, including social and economic effects, on minority populations and low-income populations.
2. To ensure the full and fair participation by all potentially affected communities in the transportation decision-making process.
3. To prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority populations and low-income populations.

SMATS will continue to work with all stakeholders to identify the residential, employment, and transportation patterns of low-income and minority populations so that their needs can be identified and addressed, and the benefits and burdens of transportation investments can be fairly distributed. SMATS will also continue to evaluate and where necessary, improve the Participation Plan to eliminate barriers and engage minority and low-income populations in transportation decision making.

SMATS will also continue to encourage the active participation of well-informed individuals, community groups, and other non-governmental organizations. The involvement of these individuals and groups advances the spirit and intent of environmental justice in transportation planning when they become involved in participation activities.

A basic concept is that early stakeholder involvement greatly improves opportunities for groups and individuals to achieve their desired impact on the process. There are many situations where public participation has influenced transportation decisions made in our community.

SMATS has developed an extensive list of organizations as part of its public participation and consultations efforts. However, the following groups are especially relevant as part of the outreach efforts for environmental justice purposes:

- Community Action Committee (programs for low income & elderly)
- Salvation Army
- First Ward Community Center (Potter-Longstreet Neighborhood)
- SVRC Industries (vocational rehabilitation services)
- Saginaw Chippewa Indian Tribe
- AARP, Michigan Chapter
- Saginaw County Commission on Aging

This list will continue to grow as additional groups are identified. Environmental justice efforts are ongoing as part of SMATS' outreach and community involvement efforts. Specific strategies will be developed with each group after initial contact and discussions have occurred. This will ensure that the strategies will be developed jointly and cooperatively between the MPO and community organizations representing low-income populations and minority populations.

Definition of "Minority" for Purposes of Environmental Justice

According to the U.S. DOT Order 5610.2 the following groups are defined as "minority":

1. Black (a person having origins in any of the black racial groups of Africa).
2. Hispanic (a person of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race).
3. Asian American (a person having origins in any of the original people of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands).
4. American Indian and Alaskan Native (a person having origins in any of the original people of North America and who maintains cultural identification through tribal affiliation or community recognition).

Definition of "Low-income" for Purposes of Environmental Justice

Low-income is defined as a person whose household income is at or below the Department of Health and Human Services (HHS) poverty guidelines. HHS poverty guidelines are used as eligibility criteria for the Community Services Block Grant Program and a number of other federal programs. However, a state or locality may adopt a higher threshold for low-income, as long as the higher threshold is not selectively implemented and is inclusive of all persons at or below the HHS poverty guidelines.

Analysis

SMATS has developed and maintains a demographic profile of the transportation planning area that includes identification of the locations of minority populations and low income populations as covered by the executive order on environmental justice. For the 2040 plan, new profiles were prepared using the 2010 Census information.

Using the latest Census data at the tract level, a series of Environmental Justice (EJ) Analysis maps was developed. The maps identified all Census tracts where the population exceeded the countywide average for the following environmental justice factors: Low Income Areas, African American Minority Areas, Hispanic Minority Areas, Asian American Minority Areas, and American Indian Minority Areas. The locations of the capacity projects listed in the plan were then overlaid on the maps to provide a visual analysis of the areas that may be impacted by the various projects. The projects and the EJ areas they might impact are shown in Table 9-1. The Environmental Justice maps are included at the end of this chapter as Figure 9-1 through 9-5.

Conclusions

This analysis shows that a total of 18 capacity projects (out of 20 total) may impact one or more of the EJ analysis areas. The results of the environmental justice analysis show that the projects might impact 8 American Indian minority areas, 12 Asian minority areas, and 3 Hispanic minority areas. The projects may also impact 7 low income areas. All of the projects will be built within the existing right-of-way. None of the projects will involve any relocations or displacements.

During the planning process, all projects will have an opportunities for public comment and participation. Project open houses are held for major projects to discuss the impacts of the project on the community, including any impacts on low income populations or minority populations. Also, during construction, appropriate detour routes are developed to minimize delay and disruption on all population groups.

Having followed the appropriate environmental justice practices, SMATS has not identified any disproportionately (unusually high) adverse impacts on minority or low income populations that would result from the projects selected for the 2040 Metropolitan Transportation Plan.

Table 9-1. Environmental Justice Analysis Areas Impacted by SMATS Projects

Route	Limits	Description	Year	EJ Area(s) Impacted
Pierce Rd	Bay to Davis	Add center left-turn lane	2012 -- 2020	Low Income, Asian, American Indian
Tittabawassee Rd	At Bay Road Intersection	Add right turn lane in East Quad	2012 -- 2020	Low Income, Asian, American Indian
McCarty Rd	Bay Rd to Fashion Sq. Blvd	Add center left-turn lane	2012 -- 2020	Low Income, Asian, American Indian
Brockway Rd	Passolt to Center	Add center left-turn lane	2012 -- 2020	Asian
Hemmeter Rd	Brockway to State	Add center left-turn lane	2012 -- 2020	Asian
Wieneke Rd	Weiss to Shattuck	Add center left-turn lane	2012 -- 2020	Asian
Freeland Rd	Midland to Webster	Add center left-turn lane	2012 - 2020	American Indian
Freeland Rd	At River Rd Intersection	Add turn lanes(s)	2012 - 2020	American Indian
Tittabawassee Rd	At River Rd Intersection	Add turn lane(s)	2012 - 2020	American Indian
Mackinaw Rd	McCarty to 0.25 mile N of Tittabawassee	Add center left-turn lane & intersection safety improvements	2021 - 2030	Low Income, American Indian
Michigan Ave	Weiss to Shattuck	Widen to 4 lanes	2021 - 2030	Hispanic
Miller Rd	Gratiot to State	Add center left-turn lane	2021 - 2030	Asian
Hemmeter Rd	State to Shattuck	Widen to 4 lanes	2021 - 2030	Asian
Mackinaw Rd	Shattuck to McCarty	Add center left-turn lane	2031 - 2040	Low Income, American Indian
Center Rd	Michigan to Gratiot	Widen to 4 lanes	2031 - 2040	Low Income, Asian, Hispanic
Michigan Ave	Shattuck to Tittabawassee	Add center left-turn lane	2031 - 2040	Asian, Hispanic
Shattuck Rd	Bay Rd to Fashion Square Blvd	Widen to 4 lanes	2031 - 2040	Low Income, Asian
Shattuck Rd	Hospital Rd to Wieneke	Add center left-turn lane	2031 - 2040	Asian

Saginaw Metropolitan Area Transportation Study (SMATS)

Identification of Low Income Areas for Environmental Justice Analysis

Census Tracts Containing Low-Income Populations above the SMATS Area average of 16.9% 2010 Census Data

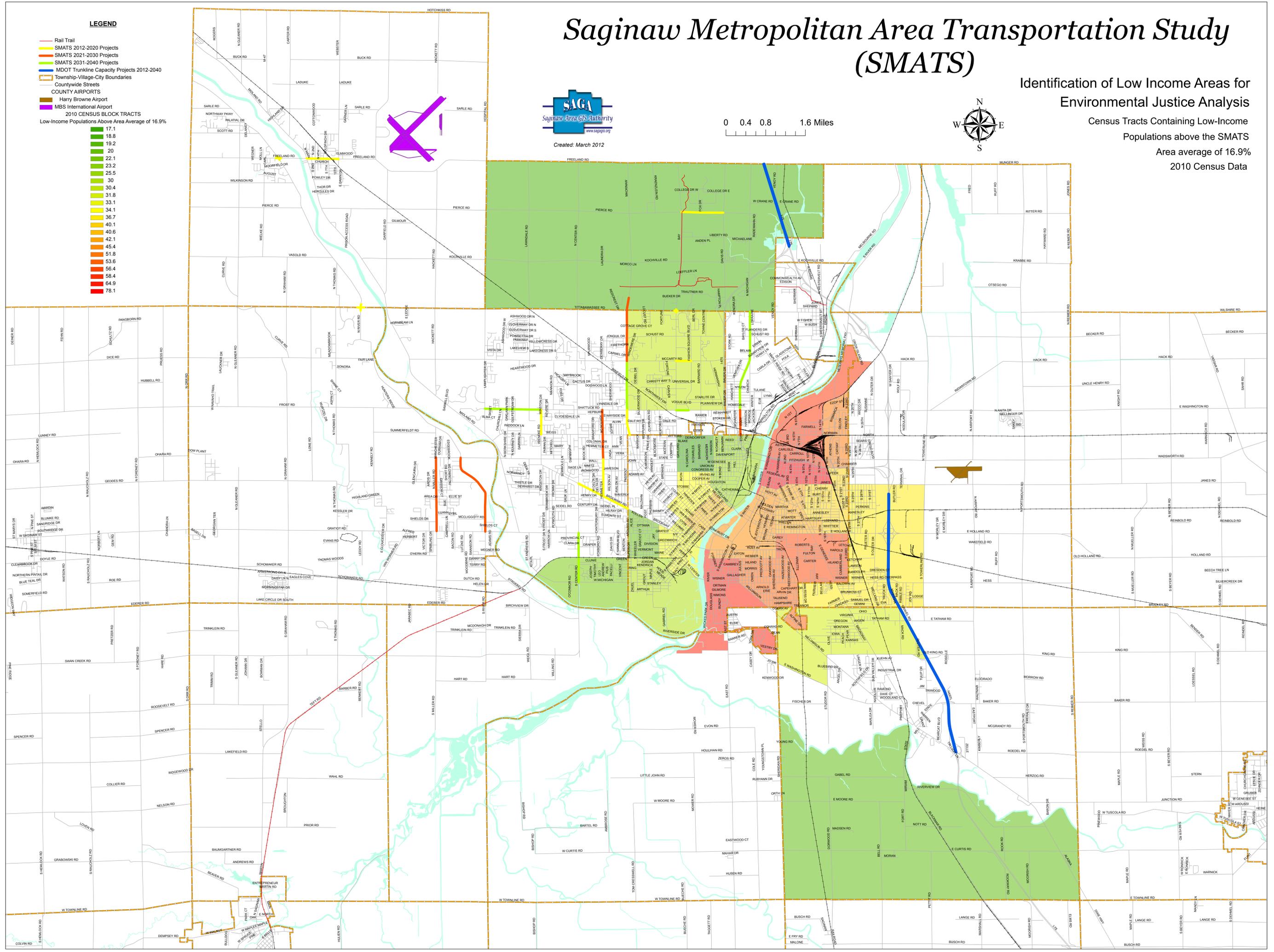
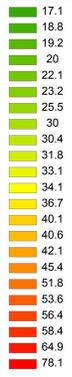


Created: March 2012



LEGEND

- Rail Trail
- SMATS 2012-2020 Projects
- SMATS 2021-2030 Projects
- SMATS 2031-2040 Projects
- MDOT Trunkline Capacity Projects 2012-2040
- Township-Village-City Boundaries
- Countywide Streets
- COUNTY AIRPORTS
- Harry Browne Airport
- MBS International Airport
- 2010 CENSUS BLOCK TRACTS
- Low-Income Populations Above Area Average of 16.9%



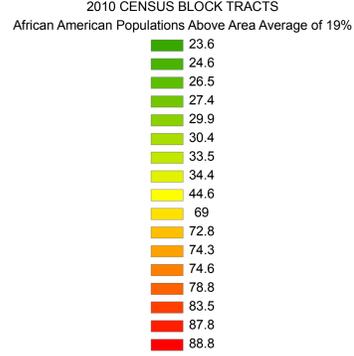
Saginaw Metropolitan Area Transportation Study (SMATS)

Identification of African American Minority Areas for Environmental Justice Analysis

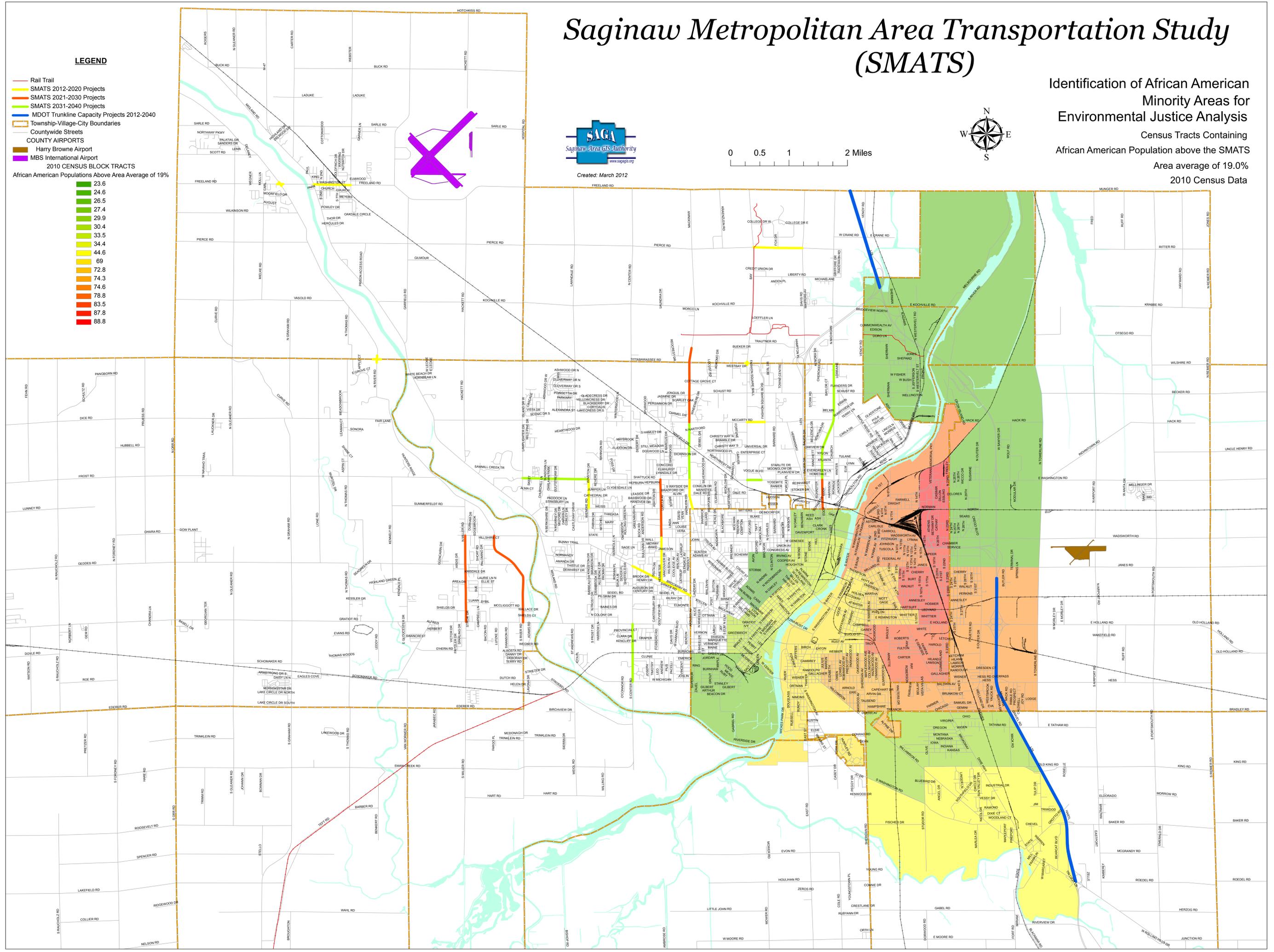
Census Tracts Containing African American Population above the SMATS Area average of 19.0% 2010 Census Data

LEGEND

- Rail Trail
- SMATS 2012-2020 Projects
- SMATS 2021-2030 Projects
- SMATS 2031-2040 Projects
- MDOT Trunkline Capacity Projects 2012-2040
- Township-Village-City Boundaries
- Countywide Streets
- COUNTY AIRPORTS
- Harry Browne Airport
- MBS International Airport



Created: March 2012



Saginaw Metropolitan Area Transportation Study (SMATS)

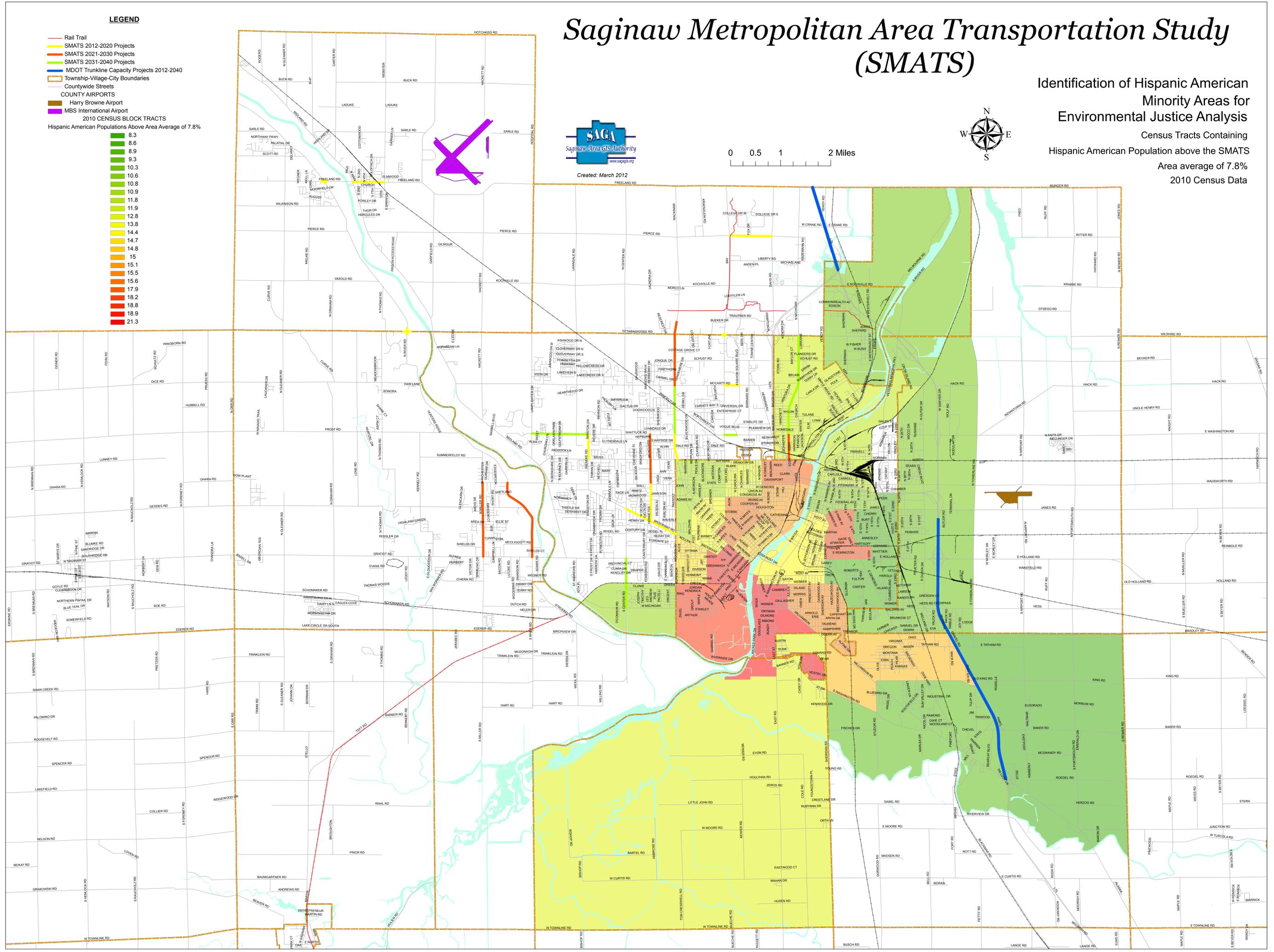
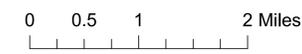
Identification of Hispanic American Minority Areas for Environmental Justice Analysis

Census Tracts Containing Hispanic American Population above the SMATS Area average of 7.8% 2010 Census Data

LEGEND

- Rail Trail
- SMATS 2012-2020 Projects
- SMATS 2021-2030 Projects
- SMATS 2031-2040 Projects
- MDOT Trunkline Capacity Projects 2012-2040
- Township-Village-City Boundaries
- Countywide Streets
- COUNTY AIRPORTS**
- Harry Browne Airport
- MBS International Airport
- 2010 CENSUS BLOCK TRACTS**
- Hispanic American Populations Above Area Average of 7.8%

8.3
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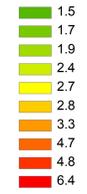
Saginaw Metropolitan Area Transportation Study (SMATS)

Identification of Asian American Minority Areas for Environmental Justice Analysis

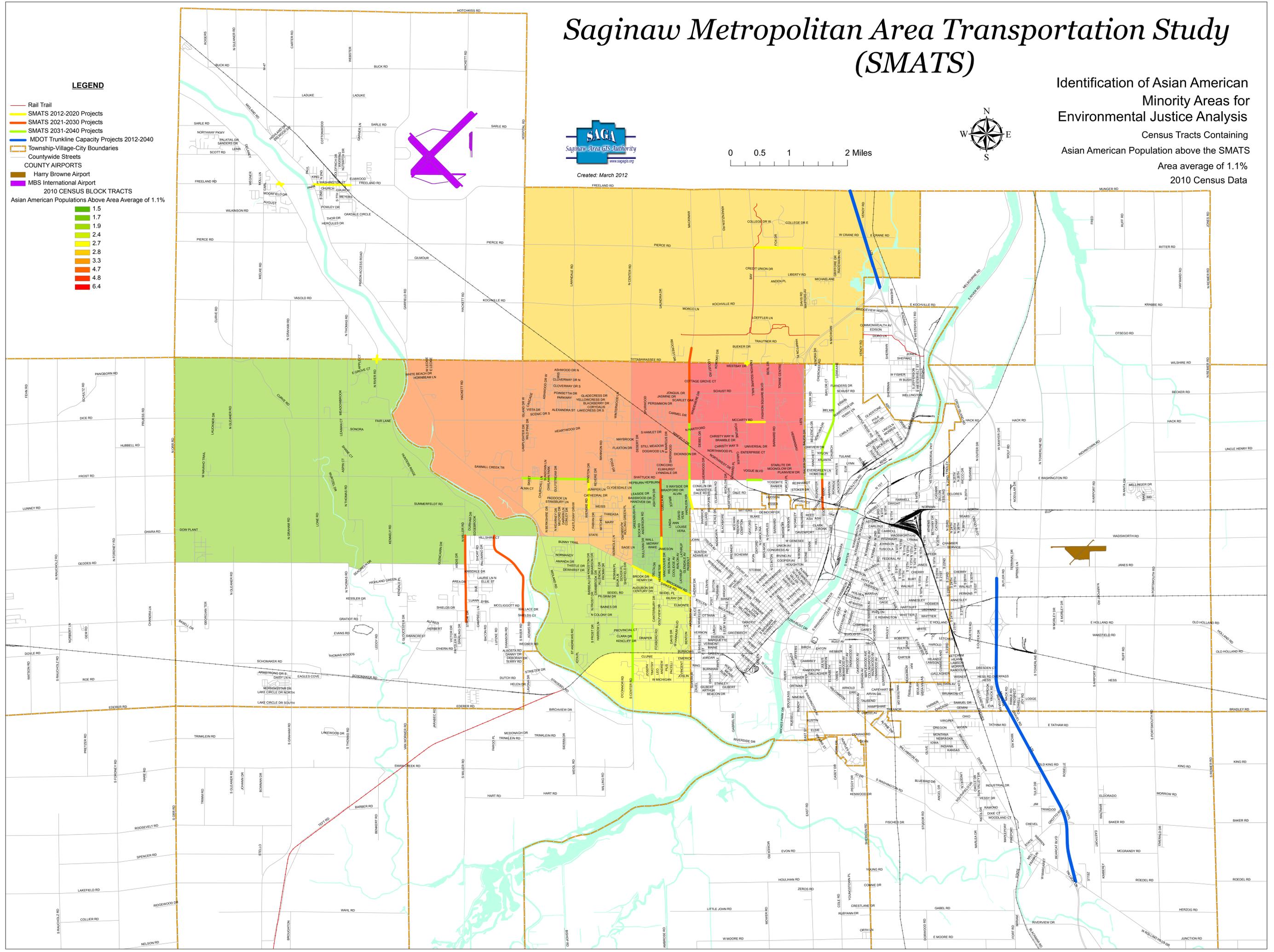
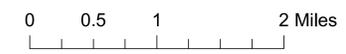
Census Tracts Containing Asian American Population above the SMATS Area average of 1.1% 2010 Census Data

LEGEND

- Rail Trail
- SMATS 2012-2020 Projects
- SMATS 2021-2030 Projects
- SMATS 2031-2040 Projects
- MDOT Trunkline Capacity Projects 2012-2040
- Township-Village-City Boundaries
- Countywide Streets
- COUNTY AIRPORTS**
- Harry Browne Airport
- MBS International Airport
- 2010 CENSUS BLOCK TRACTS**
- Asian American Populations Above Area Average of 1.1%



Created: March 2012

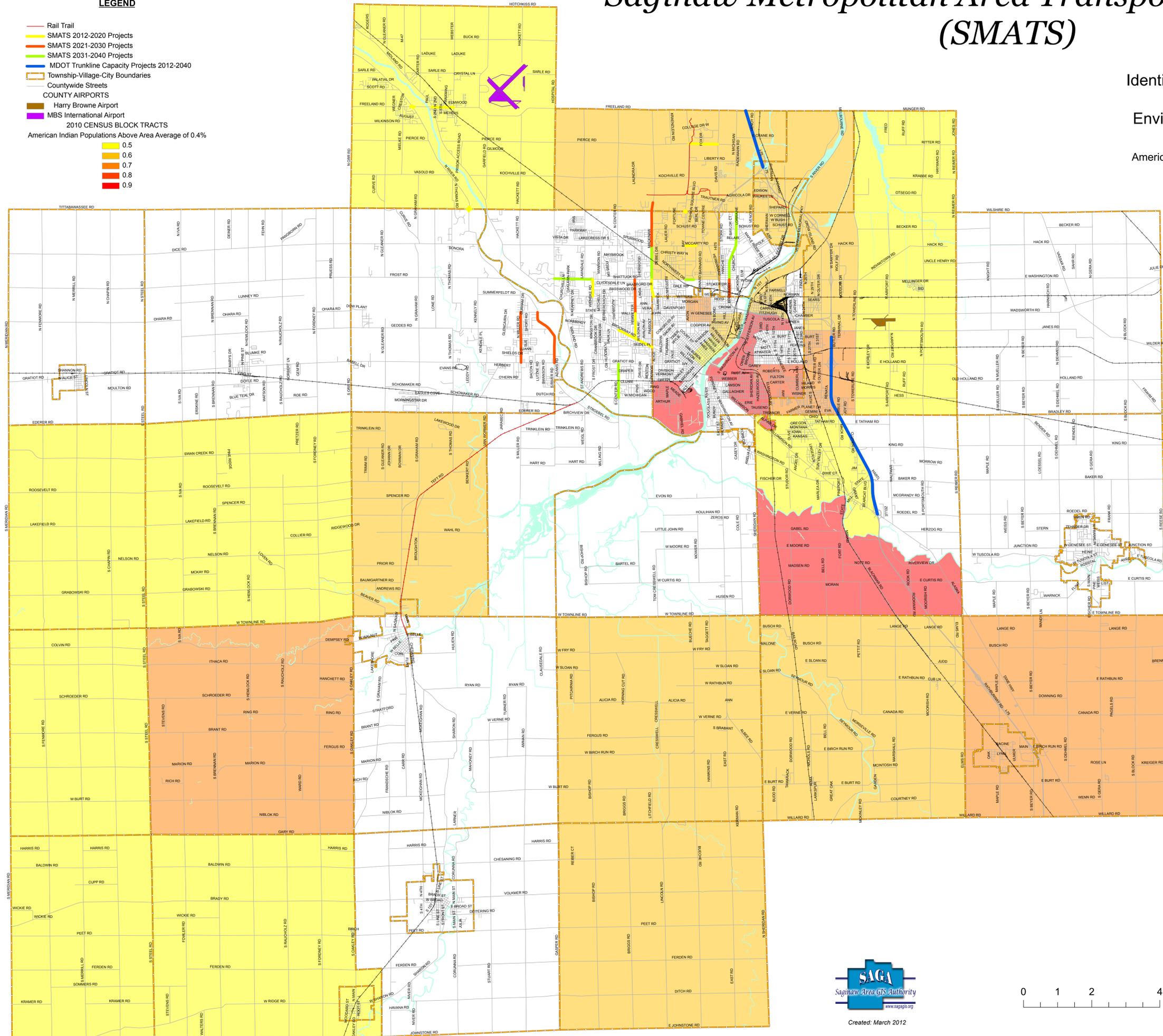


Saginaw Metropolitan Area Transportation Study (SMATS)

Identification of American Indian
Minority Areas for
Environmental Justice Analysis
Census Tracts Containing
American Indian Population above the SMATS
Area average of 0.4%
2010 Census Data

LEGEND

- Rail Trail
- SMATS 2012-2020 Projects
- SMATS 2021-2030 Projects
- SMATS 2031-2040 Projects
- MDOT Trunkline Capacity Projects 2012-2040
- Township-Village-City Boundaries
- Countywide Streets
- COUNTY AIRPORTS
- Harry Browne Airport
- MBS International Airport
- 2010 CENSUS BLOCK TRACTS**
- American Indian Populations Above Area Average of 0.4%
 - 0.5
 - 0.6
 - 0.7
 - 0.8
 - 0.9



Created: March 2012



Chapter 10

Public Participation and Consultation

Participation in the Planning Process

As required under SAFETEA-LU, SMATS has prepared a Participation Plan for the transportation planning process, which was adopted in June 2006. The Participation Plan was developed to accomplish the following major objectives:

- Create a process that will improve and increase participation in the transportation planning process by all stakeholders.
- Provide for early involvement in the planning process by stakeholders to ensure there are ample opportunities to participate in key decisions.
- Facilitate access to the transportation planning process by populations that typically lack formal access, such as low income, elderly, minorities, and persons with disabilities.
- Encourage involvement in the planning process by non-traditional participants.
- Foster a process that will result in transportation plans and projects that reflect the values of the communities that SMATS serves.

The SMATS Participation Plan is intended to address involvement by citizens and stakeholders in all aspects of the metropolitan transportation planning process. However, the plan also identifies specific activities to be addressed in the development of the Metropolitan Transportation Plan. These are described as follows:

Participation Process for Long Range Plan Development

- Phase I: Meetings and consultation with stakeholders identified in Appendix 1 and other interested parties. Summaries of the meetings and consultations will be included in the plan document.
- Phase II: Outreach activities, with information posted on the SMATS website and media releases distributed to announce public meetings and the plan development schedule.
- Phase III: Conduct community forums at convenient times and places to present the plan process and obtain input.

Phase IV: Present the draft plan at an advertised open house, and describe the plan approval process and timeline.

As described in the SMATS Participation Plan, a 30-day public review and comment period will be provided for the draft MTP prior to adoption by the MPO Policy Body. The following specific activities are being utilized for outreach and participation for the 2040 MTP:

- Public Information Meeting for Draft Project List, March 29, 2012 at the Saginaw County Road Commission.
- Public Information Meeting & Open House for the Draft Plan, June 6, 2012 at Hoyt Library.
- Public Information Meeting & Open House for the Draft Plan, June 19, 2012 at the SMATS Office, Saginaw County Governmental Center.
- Public Hearing on the Draft Plan, June 19, 2012 at the SMATS Office, Saginaw County Governmental Center.

The SMATS MTP has been prepared in accordance with the process identified in the adopted Participation Plan. All of the stakeholders identified in the SMATS Participation Plan (listed below) have been encouraged to review and comment on the draft 2040 MTP. Comments and responses are included in an appendix. Prior to adoption of the final plan, the Saginaw County Metropolitan Planning Commission held a public hearing on the draft plan. This provided an additional opportunity for any group or individual to comment on the plan, in addition to the public review workshops (open houses) previously noted.

Stakeholder List for 2040 MTP Review & Consultation

- Saginaw Valley State University
- Delta College
- Saginaw County Chamber of Commerce
- UAW Regional office
- ISD (All County School Districts)
- Public Libraries of Saginaw
- Community Action Committee
- SVRC (Saginaw Valley Rehabilitation Center)
- Saginaw Future Inc.
- Michigan Works
- Saginaw Community Foundation
- Underground Railroad
- First Ward Community Center
- Salvation Army
- Saginaw County Convention Bureau
- United Way of Saginaw County
- MBS International Airport

- Harry Browne Airport
- Railroads (Huron & Eastern, Saginaw Bay Southern, and Lake State)
- Go21 (Rail industry advocacy group)
- Saginaw River shippers/businesses
- Tri-City Cyclists
- Michigan Trails & Greenways Alliance
- Saginaw County Parks and Recreation Commission
- Saginaw County Public Works Commission
- Saginaw County Department of Public Health
- Saginaw County Commission on Aging
- Saginaw County Emergency Management & Homeland Security
- Saginaw County Sheriff Department
- Shiawassee National Wildlife Refuge
- Michigan Dept. of Environmental Quality (Saginaw Bay District)
- Michigan Dept. of Natural Resources (Saginaw Bay District)
- Historical Society of Saginaw County
- AARP, Michigan Chapter
- Saginaw YMCA
- Mayor and City Manager, City of Saginaw
- City of Saginaw Department of Development
- Home Builders Association
- Spicer Group
- Saginaw County Board of Commissioners
- Saginaw County Road Commissioners
- U. S. Environmental Protection Agency
- U. S. Fish and Wildlife Service
- Members of various other committees and individual residents

Consultation Efforts

As part of the plan's development, SMATS has consulted with a number of agencies. Much of this consultation and coordination takes place on a frequent, ongoing basis, such as the interaction that occurs with MDOT Bay Region staff, STARS public transit staff, and the staffs of the Saginaw County Road Commission and the City of Saginaw Traffic Engineering. Other specific consultation activities that have occurred to date during the development of the MTP are described in the rest of this section.

Travel Demand Model Development Activities

During the development of the Tri-City Travel Demand Model for the 2040 MTP, SMATS staff consulted with representatives of the communities both within and outside the urbanized area to review the updated socio-economic data for the base year and forecast years. Most of this consultation took place during August through October 2011. These discussions focused on projected residential development and population changes, employment changes, and general transportation issues. Individuals contacted include the following:

Saginaw Charter Township: Bridget Smith, Township Planner.

City of Saginaw: Odail Thorns, Director of Development.

Thomas Township: Russ Taylor, Township Manager; Dan Sika, Community Development Director.

Kochville Township: Jim Loiacano, Township Supervisor; Sheila Hill, Township Clerk.

Tittabawassee Township: Brian Kischnick, Township Manager.

Buena Vista Charter Township: Jeff Cain, Zoning Administrator & Building Inspector.

Carrollton Township: Tricia Mejia, Zoning Administrator.

Village of Birch Run: Michael Setzer, Zoning & Building Administrator

City of Frankenmuth: Phillip Kerns, City Clerk; David Geiger, City Planning Commissioner

Outcomes: Some adjustments of the base year and forecasts for population and employment data for use in the Travel Demand Model.

Other Specific Consultation Activities:

MBS International Airport. Contacts: Jeff Nagel, Manager; Ryan Riesinger, Assistant Manager. Date: October 28, 2011. The purpose of the consultation was to exchange information between SMATS and MBS regarding current plans and activities. The meeting was held in conjunction with BCATS. SMATS also obtained a copy of the MBS Master Plan. Outcomes: MBS and SMATS will continue to exchange information through notices of meetings and other activities, and SMATS will encourage MBS to participate in the MPO transportation planning process. The information obtained by SMATS was used to update the MTP chapter on the existing transportation system. SMATS will also provide the draft 2040 MTP to MBS for review.

Harry Browne Airport. Contact: Alan Kaufman, Manager. Date: January 2012. The purpose of the contact with the airport director was to first inform and encourage airport participation in the dialogue of the 2040 Long Range Transportation Plan for Saginaw County. It was and is a critical area to include the airport's input and their board's future planning of operations in the document. The result of the communication was extensive, detailed material associated with airport grants and development plans. These facts will be included in the final long range plan. In addition, it is our goal as an MPO to include airport staff in future information exchanges and ongoing transportation planning activities.

East Michigan Council of Governments. Contact: Sue Fortune, Executive Director. Date: January 2012. SMATS office contacts with the regional planning agency are frequent as that office is an active participant in our meeting schedule. This particular contact was to explore various documents and reports that the region housed that may assist our office as background material in the planning process. MPO Staff obtained some information regarding regional studies and plans that may prove helpful in the MTP development.

Area Railroads (Lake State, Saginaw Bay Southern, Huron & Eastern, Mid-Michigan). Contacts: Jack Bixby, Dan Ebelt. Dates: January and March 2012. Area rail representatives were contacted specifically in January 2012 by SMATS staff to solicit input for the MTP concerning local railroad issues. Representatives were also invited to the SMATS Public Information meeting in March to solicit input on the draft project list as it might impact rail operations. Staff also referred the rail personnel to the State Rail Plan and its list of projects in the Saginaw area. To date, no specific comments have been received. MPO staff have reviewed the State Rail Plan for information and projects that are relevant to Saginaw.

Saginaw Future: Contacts: Steve Jonas & Greg LaMarr. Date: February and March 2012. Saginaw Future is Saginaw County's lead agency for economic development. The contact with these two key staff was to inform and obtain key information for use in our long range transportation document. Of particular interest to us was employer data, future business development and freight trends, information that office may have as a result of their work in the community and statewide networks. We were particularly interested in Futures institutional knowledge and data regarding companies that ship freight and receive freight, particularly middle to upper size organizations on either end of the freight movement chain. The result of these communications was information of interest in the planning process and a renewed level of participation on Futures part in the work and projects of the MPO.

Saginaw County Parks & Recreation Commission. Contact: John Schmude, Director. Dates: January - May 2012 (ongoing). MPO staff contacted Parks & Recreation to obtain information on non-motorized pathway planning activities, and to encourage participation by Parks in the transportation planning process. As a result, SMATS obtained information on the latest planned Saginaw Valley Rail Trail extension along Stroebel Road. After attempts to obtain transportation enhancement funds for this project were unsuccessful, the project is now being funded by a grant from the Michigan Natural Resources Trust Fund. Staff also obtained

information on the Tri-County Regional Pathway Study, which is looking at opportunities for the development of an interconnected regional pathway system within Bay, Midland, and Saginaw Counties.

U. S. Environmental Protection Agency (Saginaw Community Information Office). Contacts: Diane Russell & Mary Breeden. Date: April 2012. SMATS staff met with local EPA staff members to exchange information on the 2040 MTP and EPA's activities in the area. EPA has recently established a new and permanent Community Information Office in Saginaw. EPA is engaged in extensive cleanup plans for the Tittabawassee River, Saginaw River, and Saginaw Bay. The agency's short and long term plans of action, and what potential impacts those activities could have on transportation planning are of particular interest. Outcomes: Provided copies of the MTP draft project list to EPA staff and obtained copies of EPA's cleanup plan information.

Ongoing Consultation

Consultation efforts continued during the review of the draft 2040 MTP. MPO staff made additional outreach efforts with appropriate agencies, including offering the opportunity to arrange individual meetings with stakeholder organizations if desired. Copies of notices, correspondence, and attendance list for public meetings on the draft plan are included in Appendix A.

All of the stakeholders identified in the Participation Plan were contacted regarding the availability of the draft Metropolitan Transportation Plan, and encouraged to review the full document and submit comments during the public review period. The comments received and the MPO staff responses are included in Appendix B.

Chapter 11

Illustrative Projects (Unfunded Transportation Needs and Projects)

This chapter lists additional transportation projects that have been identified by agencies and member communities that presently lack sources of funding. These unfunded projects are listed separately in the MTP as illustrative projects. These projects are not part of the financially constrained plan. If additional funding becomes available for an illustrative project, it is the intent of this plan to permit the project to be added to the project list in Chapter 6 without a formal amendment, *provided* that financial constraint is maintained for the overall plan.

Road and Bridge System Illustrative Projects

Name / Route	Location or Limits	Description	Estimated Cost	Agency	Comments
Block Rd Bridge & Road Extension	Cass River south to Jefferson St/Orr Rd	Bridge over Cass River & road extension to connect N & S segments of Block Rd.	\$4,500,000	Frankenmuth City	In non-urbanized area. Identified in community master plan.
I-75	Hess Rd to N of I-675 off-ramp	Widening – major capacity increase	\$43,230,000	MDOT	
Davis	Tittabawassee to Pierce	Reconstruct with turn lanes at intersections	\$3,500,000	SCRC	
Fashion Square Blvd	Loeffler to Pierce	Extend existing road	\$2,500,000	SCRC	
Fortune Blvd	McCarty to Tittabawassee	Extend existing road	\$1,500,000	SCRC	
Shields Drive	Meijer to Kennelly	Extend existing road	\$1,500,000	SCRC	
Sunshine Drive	M-46 to Graham	Extend existing road	\$2,000,000	SCRC	
Carrollton Rd	Weiss to Kochville	Reconstruct	\$5,000,000	SCRC	
Dixie Highway	County Line to Hess Rd	Reconstruct	\$35,000,000	SCRC	
Freeland Rd	River Rd to Midland Rd	Widen to 4 lanes	\$6,000,000	SCRC	
Center	Michigan to Gratiot	Widen to 4 lanes	\$1,500,000	SCRC	
Tittabawassee Rd	Center to Lawndale	Widen to 5 lanes with dedicated left-turn lane	\$1,000,000	SCRC	

Road and Bridge System Illustrative Projects

Name / Route	Location or Limits	Description	Estimated Cost	Agency	Comments
Williamson	Dixie to Treanor	Widen to 3 lanes	\$3,000,000	SCRC	
Tittabawassee	River to Midland	Widen to 4 lanes	\$1,000,000	SCRC	
Shattuck	Mackinaw to Bay	Widen to 5 lanes with dedicated left turn lane	\$2,000,000	SCRC	
Webber Street	Washington Ave (M-13) to City Limits	Reconstruct road with two-lane asphalt, curb & gutter cross section, including left turn lanes at major intersections.	\$5,800,000	Saginaw City	
Mackinaw Street	State St (M-58) to Hamilton St	Reconstruct road with two-lane asphalt, curb & gutter cross section, including left turn lanes at major intersections.	\$4,800,000	Saginaw City	
Hess Avenue	Washington Ave (M-13) to City Limits	Reconstruct road with two-lane concrete, curb & gutter cross section from Washington to Elmwood. Reconstruct with four-lane concrete, curb & gutter cross section from Elmwood to City Limits, with center turn lanes at Genesee.	\$8,000,000	Saginaw City	
Bay Street	Alexander St to State St (M-58)	Reconstruct road with three lane asphalt, curb & gutter cross section, including continuous center turn lane.	\$2,000,000	Saginaw City	

Road and Bridge System Illustrative Projects

Name / Route	Location or Limits	Description	Estimated Cost	Agency	Comments
Williamson Avenue	City Limits to Thayer St	Reconstruct road with two-lane asphalt, curb & gutter cross section, including left turn lanes at major intersections.	\$2,800,000	Saginaw City	
Norman Street Bridge	Over Veterans Memorial Parkway	Deck replacement and structure rehabilitation	\$1,400,000	Saginaw City	
North Thomas Road	Frost Rd to Tittabawassee Rd	Reconstruction	\$750,000	SCRC/Thomas Township	Not Federal Aid eligible

Public Transportation System Illustrative Projects

The public transportation system identified in the financially constrained LRP includes only the current service areas and service levels. However, STARS has been engaged in the development of a Transit Master Plan that is intended to provide a long range vision for public transportation in the community. The STARS TMP includes a recommended service plan that would implement a number of new service components during 2013 through 2035. These proposed new services are summarized as follows (Source: STARS TMP, prepared by HDR, Draft, December 2011):

Regional Services

Regional services connect Saginaw County with other adjacent counties. For the recommended service plan, Bay and Midland Counties would be connected with commuter services. Bay County would also be connected with a new college oriented service called the “Ed Line.”

Commuter Express Service

Two separate commuter express bus routes operating during weekday peak periods, would connect Saginaw Charter Township (perhaps originating at the Center Court area) with Bay City and Midland. The service would operate as a limited stop service and is intended to have “park and ride” connections.

Ed Line

The “Ed Line” (“Ed” was short for “education”) service would connect the main campus of Delta College (in Bay County) with Saginaw Valley State University (SVSU), with the core of the City of Saginaw (the medical area), and Delta’s Ricker campus. This service

would operate as a limited stop express and include a stop at STARS's Downtown Transfer Center to facilitate transfers from other fixed routes.

Urban Services

Urban services fall into three classes. There would be services within the City of Saginaw, services within the urbanized portion of Saginaw County but generally outside of the City, and finally services that connect the City and the Saginaw Charter Township.

City of Saginaw

As indicated above the September 2011 STARS fixed route and Lift service would continue to operate under this TMP. Services that would be introduced as part of the TMP include:

- ***Subsidized taxi services to operate weekday and Saturday evenings.*** The subsidized taxi public transportation model incorporated a taxi subscription (scrip) program. The subsidy would be provided directly to passengers to purchase taxi services. A subsidized taxi program would be offered to the general public instead of evening fixed route transit service, when demand for public transit service would be low.
- ***“Med Line” (“Med” is short for medical) service*** connecting major medical institutions in the core of Saginaw. This includes the VA Hospital, Covenant and St. Mary's facilities. This is done to also facilitate the development of regional medicine through the Central Michigan University (CMU)'s Medical Education Partners. While it would be operated by STARS, it would have a distinctive vehicle and identity.

Urbanized Saginaw County

- Saginaw Charter Township would have “flex route” service generally connecting the Wal-Mart at Lawndale and State Roads to SVSU and the main campus of Delta College. If demand warrants, the southern terminus of the route could instead be the shopping areas at Gratiot and Center Roads. The flex route service would be branded with a distinctive vehicle and identity. The service would be operated by STARS.

City/Urbanized County Connections

- Two routes from the current (September 2011) STARS service would be extended from the City into Saginaw Charter Township. Route 1 and Route 6 would be extended. Route 1 would provide more regular service to the Wal-Mart (at Lawndale and State Roads). Route 1 in 2011 serviced that retail area but at long (infrequent) headways. Route 1 service would provide that service on a more regular basis. In addition, Route 6 would have a branch line that would operate in Saginaw Charter Township: west on Shattuck Road to North Center Road to McCarty to Mackinaw and Tittabawassee Roads.

Rural and Countywide Services

Two types of services would be provided in the route portions of Saginaw County. The first would be a network of flex routes connecting the various villages. The second

service, operating countywide would be coordination of human transportation services provided by various social service agencies.

Flex routes

Similar to the flex route described above for Saginaw Charter Township above similar services would be provided linking the villages. The flex routes, though operated by STARS, would also be branded with distinctive vehicles and identity.

- *St. Charles/Saginaw* would connect Village of St. Charles with City of Saginaw and its medical areas.
- *St. Charles/Chesaning* would connect Villages of St. Charles and Chesaning.
- *Merrill/SVSU/Delta* would connect Merrill and western Saginaw County with SVSU and Delta College.
- *Chesaning/Birch Run* would connect Villages of Birch Run and Chesaning.
- *Bridgeport* would connect Village of Bridgeport and the general area.
- *Birch Run/Frankenmuth* would connect Villages of Birch Run and Frankenmuth.

Coordinated Human Services Transportation

Following a negotiation process with affected agencies, STARS would lead the effort to coordinate the shared use of existing human service agency transportation services to:

- Increase the productivity and lower the cost/client trip of agency existing services;
- Reduce transportation service overlaps; and,
- Provide a safety net for the client trips of agencies that do not have transportation services available for their clients.

Service Plan Implementation

The STARS TMP calls for the recommended service plan to be implemented in phases over roughly a 25-year period. The major phases for addition of the various new services are summarized as follows (Source: STARS TMP, prepared by HDR, Draft, December 2011):

Phase 1 New Services (2013 – 2015)

Market	Service	Type	Days/Hours of Operation
<i>Regional</i>	Ed Line	Express	Mon-Fri, 7AM to 11PM
<i>Urban</i>	Saginaw TWP/SVSU/Delta	Flex Route	Mon-Sat, 7AM to 11PM
<i>Urban</i>	M-F Late Night (to 12mid)	Subsidized Taxi	Mon-Fri, 8PM to 12PM
<i>Urban</i>	Sat Late Night (to 12mid)	Subsidized Taxi	Saturday, 8PM to 12PM
<i>Urban</i>	Sunday Daytime	Subsidized Taxi	Sunday, 8AM to 7PM
<i>Rural</i>	St. Charles/Saginaw	Flex Route	Mon-Sat, 7AM to 11PM
<i>Rural</i>	Birch Run/Frankenmuth	Flex Route	Mon-Sat, 7AM to 11PM
<i>Rural</i>	Chesaning/Birch Run	Flex Route (life line)	Mon-Wed-Fri, 7AM to 11PM
<i>Rural</i>	HHS Coordination	Demand Response	Mon-Fri, 8AM to 5PM

Estimated Phase 1 New Service Cost: \$11,999,000

Phase 2 New Services (2016 – 2020)

Geography	Service	Type	Days/Hours of Operation
<i>Regional</i>	Midland Commuter	Fixed Route	Mon-Fri, Peak Periods
<i>Regional</i>	Bay City Commuter	Fixed Route	Mon-Fri, Peak Periods
<i>Rural</i>	Chesaning/Birch Run	Flex Route	Mon-Sat, 7AM to 11PM

Estimated Phase 2 New Service Cost: \$5,623,000

Phase 3 New Services (2021 – 2025)

Geography	Service	Type	Days/Hours of Operation
<i>Urban</i>	Med Line	Fixed Route	Mon-Sat, 7AM to 7PM
<i>Rural</i>	Bridgeport Area	Flex Route (life line)	Mon-Wed-Fri, 7AM to 11PM
<i>Rural</i>	St. Charles/Chesaning	Flex Route (life line)	Tues-Thu, 7AM to 11PM

Estimated Phase 3 New Service Cost: \$3,367,000

Phase 4 New Services (2026 – 2035)

Geography	Service	Type	Days/Hours of Operation
<i>Urban</i>	Extend Routes 1 and 6	Fixed Route	Mon-Sat, 6AM to 12PM
<i>Rural</i>	Merrill/Saginaw Twp/Delta	Flex Route (life line)	Mon-Wed-Fri, 7AM to 11PM

Estimated Phase 4 New Service Cost: \$6,753,000

According to the STARS TMP, the total costs for all of the new services for 2013 through 2035 are estimated to be \$262,042,000.